

January 1955

TECHNOLOGY

REVIEW

Title Reg. in U. S. Pat. Office

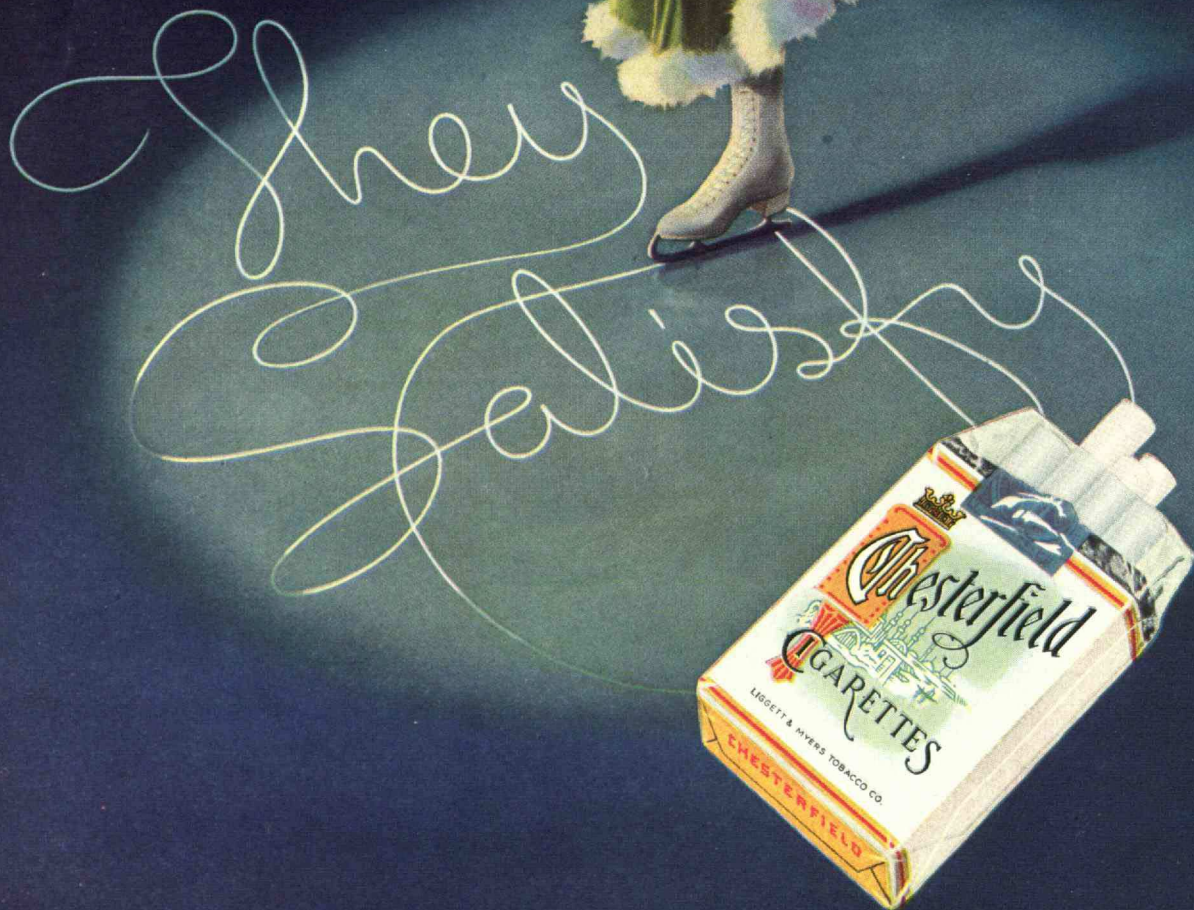


technology review

Published by MIT

This PDF is for your personal, non-commercial use only.
Distribution and use of this material are governed by copyright law.
For non-personal use, or to order multiple copies please email
permissions@technologyreview.com.

Here's the way I write
Chesterfield —



© 1935, LIGGETT & MYERS TOBACCO CO.

THE TECHNOLOGY REVIEW, January, 1935. Vol. XXXVII, No. 4. Published monthly from October to May inclusive and in July at 10 Ferry Street, Concord, N. H. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription \$3.50; Canadian and Foreign subscription \$4.00. Entered as second-class matter at the Post Office at Concord, N. H., under the Act of March 3, 1879.

THE TABULAR VIEW

UPON entering a new year The Review greets its subscribers, wishes for them a fuller measure of life's durable satisfactions, bespeaks for them a year of regeneration and fulfillment.

To its readers, The Review also renders a report, as is common at this season, and makes acknowledgments. Its circulation is again climbing and its revenues are slightly larger, but nevertheless larger. It has ample evidence that its audience has widened beyond its circle of regular subscribers, that the radii of its influence and appeal are steadily sweeping greater arcs. The depression years have left scars but they have not disabled. The Review has never been so sound as 1935 finds it.

To our subscribers belongs the final credit for this state of health. The Review contents have been inspired and improved by its readers' understanding and appreciation. Their discrimination and interest have drawn to these pages not only gifted contributors, but quality advertisers who have found, because they merited them, ready and profitable responses.

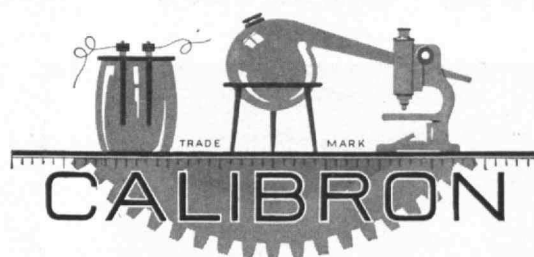
With the readers it now has, and with the additional ones it will have, The Review hopes to put into effect many plans which have been held in abeyance because of the depression. We always welcome comment and we hope that readers will write us whenever they have suggestions.

IN introducing President Karl T. Compton before a recent meeting of the United States Institute for Textile Research, Inc., Francis P. Garvin spoke of him as "the man who, I think, holds the most important position in the United States today because, as Chairman of the National Science Advisory Board, it is his task to introduce the advance of science into the efficiency of modern government in this country."

¶ H. E. LOBDELL, '17, is Dean of Students at M.I.T. and Publisher of The Review. He admits being a stamp collector—a philatelist, rather—and cultivates a specialty in postally-used pairs of bilinguals from the Union of South Africa and from Southwest Africa. Some of the stamps used to illustrate his article are by courtesy of the Scott Stamp and Coin Company and others were drawn from collections of members of The Review Staff, and from the famous Fernstrom collection.

¶ FREDERICK K. MORRIS is a Professor in the Institute's Department of Geology. His article was first presented as a radio broadcast sponsored by the New England Section of the American Chemical Society.

UNDER "Mail Returns" on page 148 will be found some typical replies from Review readers to the question we raised in this space last month on the propriety of The Review carrying advertising of wines, beer, and spirits. We acknowledge with appreciation the score or more letters which have been received. Every letter, without exception, approved the absence in these pages of liquor advertising.



GUARANTEED RESEARCH

- A definite price for successful results. There is no charge unless your requirements are met.
- Mechanical and Electrical Engineering / / / Developments, models, production and testing.

CALIBRON PRODUCTS, INC.

West Orange



New Jersey

ANHYDREX RUBBER INSULATION FOR WIRES AND CABLES

A N N O U N C I N G

ANHYDREX

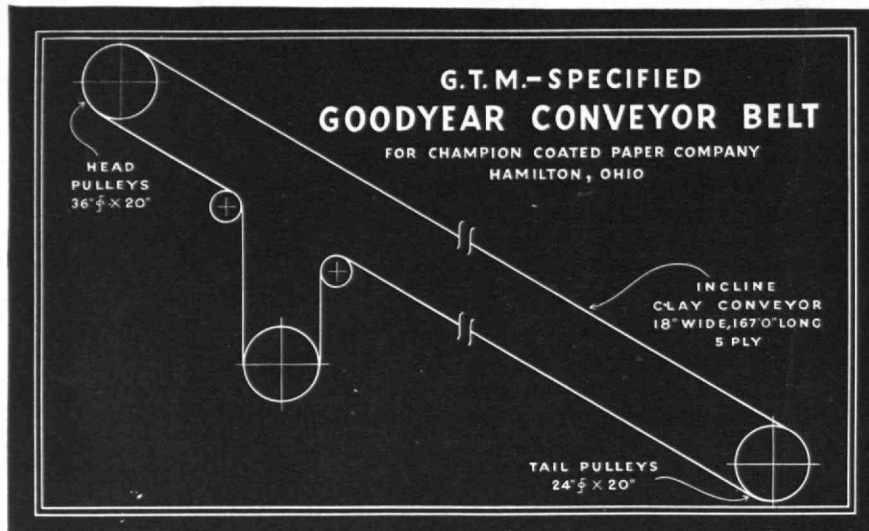
a recently developed, non-water absorptive, rubber insulation for underground or submarine power and signal cables. Lead sheaths can safely be omitted thereby doing away with possibility of electrolysis, chemical corrosion, crystallization and sheath currents.

Send for free descriptive booklet entitled
"ANHYDREX Rubber Insulation
for Wires and Cables."

SIMPLEX WIRE & CABLE CO.

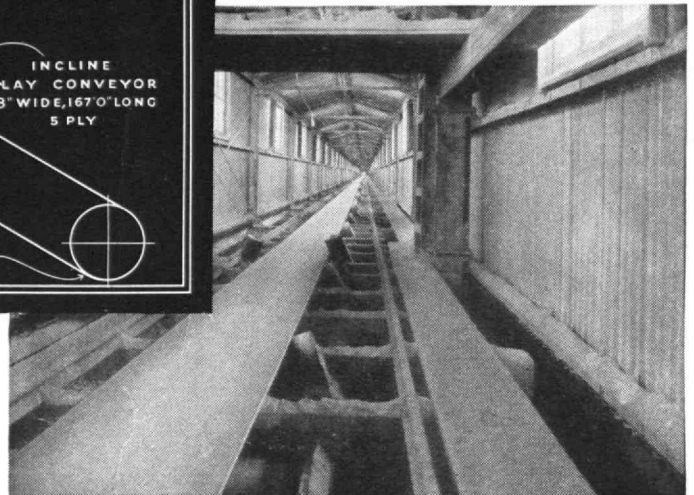
79 Sidney Street, Cambridge A
Boston, Mass.

THE CHAMPIONS OF CHAMPION



**Goodyear Conveyor Belts
set record in world's
largest coated paper mill**

**14 years' service proves
value of  Specification**



Installed 1920 — and still on the job

IN THE great modern plant of The Champion Coated Paper Company at Hamilton, Ohio, three veteran conveyor belts have quietly proved themselves champions by every test of belt performance.

Back in 1920 the G. T. M. — Goodyear Technical Man — was called to Hamilton and consulted about belts for the conveying system handling the fine clay used in giving Champion papers satin-smoothness.

Carefully considering all factors the G. T. M. recommended a 5-ply Goodyear Conveyor Belt, 18" wide by 167' long, for the incline conveyor. Another 1372' long for the distributing conveyor, and a third, 14" wide by 1440' long, 4-ply, for the reclaiming conveyor. These belts were built to specification and installed in late 1920 and early 1921.

Today, after rolling on their appointed rounds, day after day, month after month, for some 14 years—

after moving nearly seven hundred million pounds of clay — these three belts, while somewhat worn to be sure, are still good for another year of stalwart service.

That's the kind of trouble-free, low-cost, uninterrupted performance you want from belts—and that's what you get when you have belts accurately specified to your operation by the G. T. M., as records in scores of industries prove.

Why not see what this competent expert could do for you. To bring him, write Goodyear, Akron, Ohio, or Los Angeles, California — or call the nearest Goodyear Mechanical Goods Distributor.

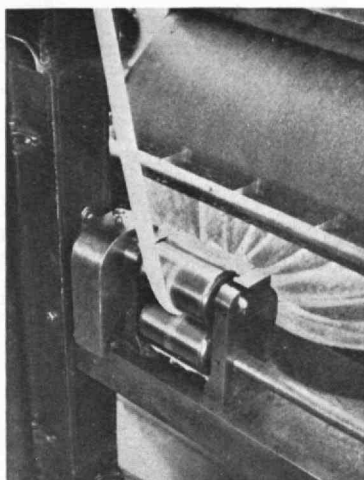
**BELTS • MOLDED GOODS
HOSE • PACKING**

MADE BY THE MAKERS OF GOODYEAR TIRES

THE GREATEST NAME  IN RUBBER

GOODYEAR

**NRA
CODE**



Rutase

THE TECHNOLOGY REVIEW

Title Reg. U. S. Pat. Office

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. 37, NO. 4

CONTENTS

JANUARY, 1935

| | | |
|---|-----------------------------------|-----|
| THE COVER | from a photograph By YOUNG-PHELPS | |
| <i>At the Plant of the Inland Steel Co., Chicago</i> | | |
| A MESSAGE FROM GUGLIELMO MARCONI | | 124 |
| <i>To the National Research Council</i> | | |
| PUT SCIENCE TO WORK! | By KARL T. COMPTON | 133 |
| <i>The Public Welfare Demands a National Scientific Program</i> | | |
| PHILATELIC ENGINEERING | By H. E. LOBDELL | 136 |
| <i>Technological Achievement as Recorded on Postage Stamps</i> | | |
| INTO THE DEPTHS OF TIME | By F. K. MORRIS | 139 |
| <i>When Did Life Begin?</i> | | |
| <hr/> | | |
| THE TABULAR VIEW | | 121 |
| <i>Notes on Contributors and Contributions</i> | | |
| THE TREND OF AFFAIRS | | 125 |
| <i>News of Science and Engineering</i> | | |
| THE INSTITUTE GAZETTE | | 140 |
| <i>Relating to the Massachusetts Institute of Technology</i> | | |
| BENDING MOMENTS | | 143 |
| MAIL RETURNS | | 148 |

Editor
J. RHYNE KILLIAN, JR.

TENNEY L. DAVIS

Publisher
HAROLD E. LOBDELL

Editorial Associates
JOHN J. ROWLANDS

Business Manager
RALPH T. JOPE

JOHN E. BURCHARD, 2ND

PUBLISHED MONTHLY FROM OCTOBER TO MAY INCLUSIVE AND IN JULY ON THE TWENTY-SEVENTH OF THE MONTH PRECEDING THE DATE OF ISSUE AT 50 CENTS A COPY. ANNUAL SUBSCRIPTION \$3.50; CANADIAN AND FOREIGN SUBSCRIPTION \$4.00. PUBLISHED FOR THE ALUMNI ASSOCIATION OF THE M. I. T. CHARLES E. SMITH, PRESIDENT; EDWARD L. MORELAND, MARSHALL B. DALTON, VICE-PRESIDENTS; CHARLES E. LOCKE, SECRETARY; J. RHYNE KILLIAN, JR., TREASURER.



PUBLISHED AT THE RUMFORD PRESS, 10 FERRY STREET, CONCORD, N. H. EDITORIAL OFFICE, ROOM 11-203, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE A. MASS. ENTERED AS SECOND-CLASS MAIL MATTER AT THE POST OFFICE AT CONCORD, N. H. COPYRIGHT, 1935, BY THE ALUMNI ASSOCIATION OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY. THREE WEEKS MUST BE ALLOWED TO EFFECT CHANGES OF ADDRESS. BOTH OLD AND NEW ADDRESSES SHOULD BE GIVEN.

A Message from
GUGLIELMO MARCONI

to

The National Research Council

WE ARE at a turning point in the history of humanity. A thousand signs show us that economic relations are in course of change. One age has gone, a new one begins. Whatever may be the economic structure toward which we march, it is certain that it will be very different from that which moulded the life of men when we were born.

"Mechanical and technical progress — and in the first line of importance, constant increase in communication and transport facilities — have troubled the old economic traditions to their foundations. Today, humanity finds itself before the problem of willing hands made idle. This is one of the gravest manifestations of the upheaval: an evil that can no longer be regarded as temporary and which must be attacked at the root. Many nations, conscious of the immensity of the phenomenon and the tragedy of its consequences, have sought the remedy in economic nationalism: a vain illusion! They but aggravate the evil.

"This must be said of the machine, which many hold responsible for things gone wrong but which lightens man's labor and aids him to conquer an otherwise unconquerable nature: we can not renounce it without retracing our steps on the highway of civilization. It is the discipline of the machine that must be achieved so that, while serving man, it may not steal away his joy in work. It is only now that scientific research is organizing to attain that marvelous end. In my opinion, every effort of science should be directed toward the development of agriculture, the creation of new industries and of new opportunities for work.

"Never has scientific research been as economically and socially necessary as it is today — but improvisations are impossible and reliance upon them is stupidity. There must be organic, planned, and rigidly disciplined work with patiently provided instruments. Scientific research must have the requisite means to work with. The State should think of this but the State can not do everything. Those who can should contribute to scientific research, and largely. They would be giving to a holy cause. I have seen marvels come from slender means and, for the good of our country, I hope my appeal will not go unheard."

[[The above message, transmitted by the State Department late last month to the National Research Council, so aptly expresses the forward-looking attitude of the present-day scientist and inventor that we are happy to have the opportunity of presenting it here. It was prepared during the Twenty-Third Convention of the Society for Scientific Progress assembled in Naples. — THE EDITOR.]]

THE TECHNOLOGY REVIEW

Vol. 37, No. 4



January, 1935

The Trend of Affairs

Notes and Observations

SCRIVEN BOLTON, the artist-astronomer, has prepared a graphic model showing the earth as it might appear to a person who, willy nilly, had planked himself down on the moon. That earth is a colossal and horrendous thing, looking millions of times bigger in the heavens than the largest orb available to our naked vision. In a day when astronomy and the sciences of macro- and micro-cosms make us begin to doubt the all-sufficient importance of man and his earth, it would be refreshing to us serious humans if we could travel the 237,857 miles to the moon and see the earth in such grandeur. It would probably be worth frying at 278° F. by day and freezing at -132° F. by night to restore a self-respect shaken by the immensity of the universe.

OF ALL the plays dealing with scientific achievement, "Yellow Jack," portraying in noble and dramatic form man's struggle against yellow fever with emphasis concentrated on the work of Walter Reed, is one of the finest yet produced. Overshadowed in popular appeal by Pulitzer-prize-winning "Men in White," it enjoyed a relatively brief run in New York last spring.

In addition to the main thread of the story, the play has many implications. One of these, suggested

early and not developed, becomes particularly significant in view of the rapid development of intercontinental air transport as described by The Review last month. Early in the play there is controversy between a Minister of Air Transport and a doctor interested in yellow fever. The Minister, it appears, objects to the quarantine of six days imposed on the west coast of Africa. How, says he, can one reconcile six days of quarantine with one day of air travel?

The point is well taken and opens up a serious question for medical and transport sciences. Nature unfortunately has not succumbed to the speed mania of humanity and will make no concessions in the life cycle of the bacillus or the time development of a virus. The possibilities of the spread of dread Oriental and African diseases into the purlieu of the white race through our new-found vehicle of travel are rather appalling and proffer one of the most tantalizing problems of coördination of science yet presented to man.

NOT many years ago in a musical revue Jimmy Schnozzola Durante, then unknown to Hollywood, was accused by one of his stooges of having a head of wood. To this, the classic mug comedian of our day made a classic response in the shape of a long song demonstrating where the United States would be

BAEDEKER

For this Section

NOTES AND OBSERVATIONS

| | Page |
|---|------|
| <i>Suggestion for bolstering a tottering self-respect at 278° F. and -132° F.</i> | 125 |
| <i>A playwright sets a modern problem in bold relief: Can six days of quarantine be reconciled with one day of air travel?</i> | 125 |
| <i>Wood's multiplying uses.</i> | 125 |
| <i>Bedside bulletins from the 200-inch telescope mirror</i> | 126 |

THE AUTOGIRO COMES BACK

| | |
|--|-----|
| <i>With its wings clipped. A note on a curious career.</i> | 127 |
|--|-----|

VOCABULARY OF THE RAILROAD

| | |
|---|-----|
| <i>Why locomotives are feminine and some colorful jargon.</i> | 128 |
|---|-----|

UNIFIED HIGHWAY SYSTEMS

| | |
|---|-----|
| <i>Germany's elaborate plans for coördinated highways, plus an item or two on some other highways of adventure.</i> | 130 |
|---|-----|

ABRACADABRA

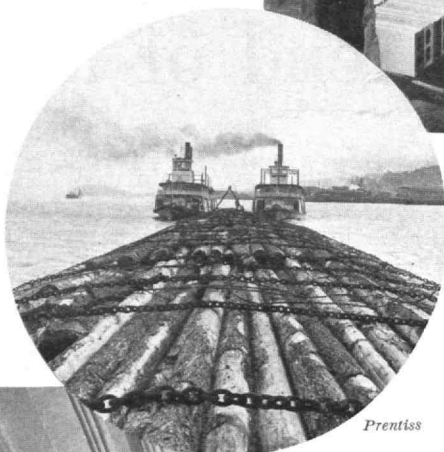
| | |
|--|-----|
| <i>Did a miner originate the alphabet?</i> | 132 |
|--|-----|

today had it not been for wood. The song was accompanied by demonstrations of wooden objects which have guided our history, piled by the assiduous Durante and his assistants into a large and somewhat obscene pile which nearly filled the stage. There is more truth than poetry in the song.

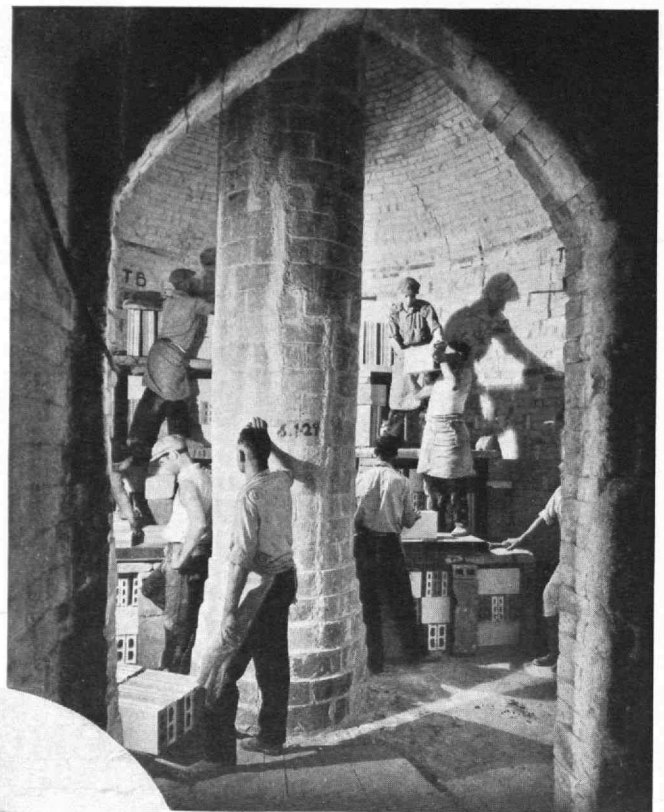
Wood has a wonderful elasticity against attack, a remarkable variety of uses. It always bobs up in some new place. The Germans in their intense search for complete "*Ersatz*" have found ways of making sugar from it, nothing daunted by the fact that it takes a lot of trees to make a very little sugar. In this country purified cellulose from wood, one of the most versatile of materials, is used in making textiles, plastics, roofing, and, of course, paper. Even that plebeian tree, the slash pine of the South, may be transmuted by the alchemy of the modern chemist into the most gossamer rayon. Last month the indefatigable Charles H. Herty of Savannah, who has been working on slash-pine newsprint, announced that his laboratory had made sulphite wood pulp, the base of rayon, from slash pine. This pulp, produced at half the usual cost, has been made into rayon of good spinning and color qualities.

It is interesting to note, too, that the wooden bridge is far from being a thing of the past. Out on the West Coast where tall trees are common, the highway departments are finding new methods of building substantial

Right: Transporting logs in Puget Sound
Below: World's largest window—a double aluminum bay in the Cincinnati Union Terminal



Prentiss



Lincoln

Above: This terra cotta kiln has an unexpected Gothic quality



Detroit Steel Products Co.

trestles entirely with prefabricated timber, and attractive bridges they are, too. Based on life and cost, these viaducts appear to be cheaper than those of steel. All this simultaneously with the announcement from Britain that the last of the great timber viaducts designed by Brunel,

resident engineer of the first Thames tunnel, has been replaced by a masonry arch and from York Village, Maine, that a new timber trestle recently opened by the state highway department recreates, at least in appearance, the original bridge of 1761. Truly man's activity sometimes seems as busy and as incoherent as the tangential runnings of ants upon their hills.

A DECISION, made last July, to recast the 200-inch mirror for the great Palomar Mountain telescope has finally resulted in the act of recasting, successfully completed early in December. The necessity for doing the whole thing over throws an interesting side light on scientific journalism.

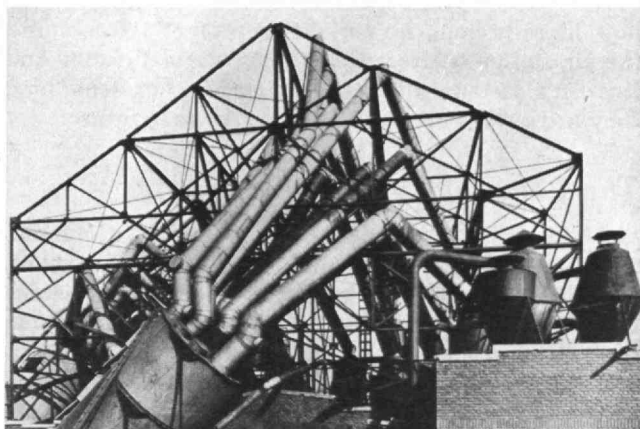
It is, of course, a long-established and sound principle of newspaper reporting that the writer must never assume the reader has heard of the subject before and must recapitulate, however briefly, all the essential facts. Applied to the Caltech telescope, this means that for the past few weeks we have had stories to the effect that the mirror was about to be cast, that it was being cast, that it had been cast. With very minor technical differences, these stories were repetitions of earlier ones.

The mirror will now take six months to cool, during which we may expect bedside bulletins from the chilling patient, all of which will also tell us how big the mirror is, where it is going, and why and how it was made. Finally, in the five-and-a-half years required to finish the great piece of glass subsequent stories may be expected. If there is one piece of scientific apparatus that should be well understood by the time it wheels cumbrously into position, it should be the great telescope of Palomar Mountain.

Wingless Wonders

AFTER a period of penance and meditation, the autogiro has come out of hiding again. We recently saw the new wingless model land on the end of a pier in the East River and take off again, and a neat little trick it is indeed. Just what bugs are left in remain to be revealed, because the pilot on this occasion was one Jim Ray, who is beyond doubt the best giro pilot in the known inhabited universe and one who can make the toughest ship look good. The more striking features of the new clipped model are the quickness with which it maneuvers and the definite control apparent even at a speed of five or ten miles an hour.

Certainly the autogiro has come a long distance during the last 18 months. The plot of the story has been something like this: For several seasons preceding the spring of 1933, the giro was widely pushed in this country by the Pitcairn Manufacturing Company and the Kellett Autogiro Company. Their early models had fixed wings and orthodox airplane controls which were ineffective at the extremely low speeds at which they landed. Outside of a few dozen ships sold for publicity or sign-towing uses, the sales results were not what the promoters expected, partly on account of the control



Bethlehem Steel Co.

feature and largely because the planes were inefficient as load carriers and low in top speeds as compared with airplanes of equal horse power. They were also expensive.

Then Cierva brought out in England the giro without any fixed wing which was controlled by tilting the rotor axis in relation to the vertical axis of the ship, and it seemed so much the perfect answer to the giro salesmen's prayers that the Pitcairn Company immediately started building one over here. When it was finally launched in the spring of 1933, it proved to be what the *New Masses* would call the Kiss of Death to the giro cause. Both factories ceased production on the old wing models and announced that they would confine themselves to further research. The result of this study is the new wingless type which we saw in New York, which is an adaptation of the earlier English model.

The Pitcairn is a small, two-place, side-by-side cabin job, powered with a 75 horse-power, Pobjoy geared engine. It really does not have any wings at all,

nor has it any movable elevators. Its fuselage is about normal in length and has fixed horizontal and vertical stabilizing surfaces, and a very diminutive rudder which is not used in ordinary maneuvers. With the astoundingly low empty weight of 600 pounds, it has a gross weight when fully loaded of 1,140 pounds, a top speed of 105 m.p.h., and a landing speed around 15 or 18 m.p.h.

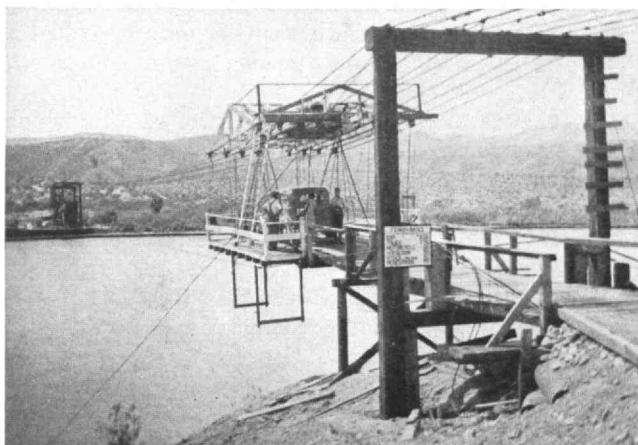
The Kellett, which has been aimed at the military and more utilitarian services rather than at the private buyer, is a bigger, open, two-place, tandem design with a 225-h.p. Jacobs engine which is expected to have a top speed of about 125 m.p.h. and carry a gross weight of 2,050 pounds, though its empty weight is only 1,350 pounds.

What is closest to the Pitcairn heart, we understand, is the following plan. They will add even another adjustment in the rotor, making it possible to change the angle of incidence of the rotor blades to that of zero lift. They then will run the rotor up to some excess speed over its normal (about 40% or 50% would suffice), pull a lever restoring the normal angle and



Merco Nordstrom Valve Co.

Top: Study in complexity. A dust-collecting system in Baltimore. Center: What oil men call a "Christmas Tree." Below: Improved cable ferry over Colorado River, 40 miles south of Boulder Dam. A Model-T engine supplies power



F. S. Conaty, '17

hop, literally hop, the perky things 50 or 100 feet into the air and go off from there into a normal climb. And this isn't just an ultimate idea either, but something they are serious about tackling in the near future.

The Language of the Railroad

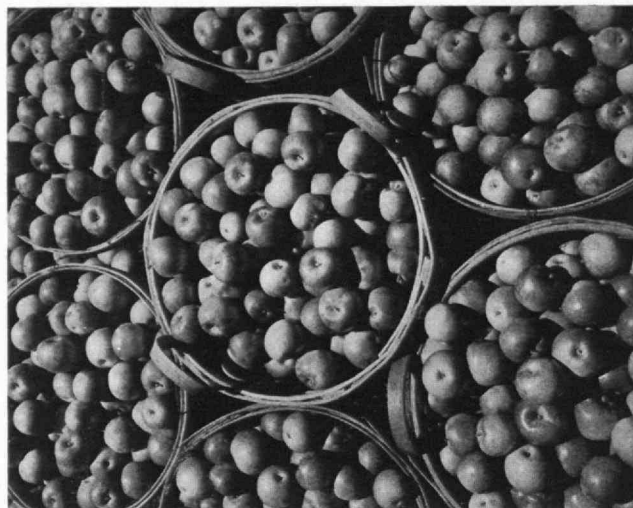
ALTHOUGH the streamlined train basks complacently in the light of public interest for the moment, and there is much talk of Diesel engines and electrification, the romance of steam railroading is far from dead. Out in the great terminal yards, in the round-houses, and on the *run*, the railroad man still lives in the traditions of his kind and speaks a language all his own.

The vocabulary of the railroad man has developed slowly, but unlike the language of the sea, the automobile world, aviation, and gangdom, his terminology with few exceptions has remained esoteric and has not become part of the vocabulary of the general public. He has coined pungent names and succinct phrases to indicate affection, contempt, disgust, or simply to describe a railroad operation briefly. Whatever he has called his locomotives, be it *mill*, *kettle*, *coffee pot*, *road hog*, *pig*, or *battleship*, they have always been referred to in the feminine gender. The term *she* has been the subject of much controversy, but whatever its origin, there seems little doubt that it expresses the very real affection railroad men have for their locomotives. These prima donnas of power are petted and pampered by their crews, and there are few engineers who do not believe that each has a personality of *her* own. One may



"Rounding" a book. A study in binding

Bartlett



Lincoln

"After Apple-Picking"

be *nervous as a cat* while another is *cranky*, and some are *stubborn* or *fussy* and need coaxing. A few have been accused of being *fickle*.

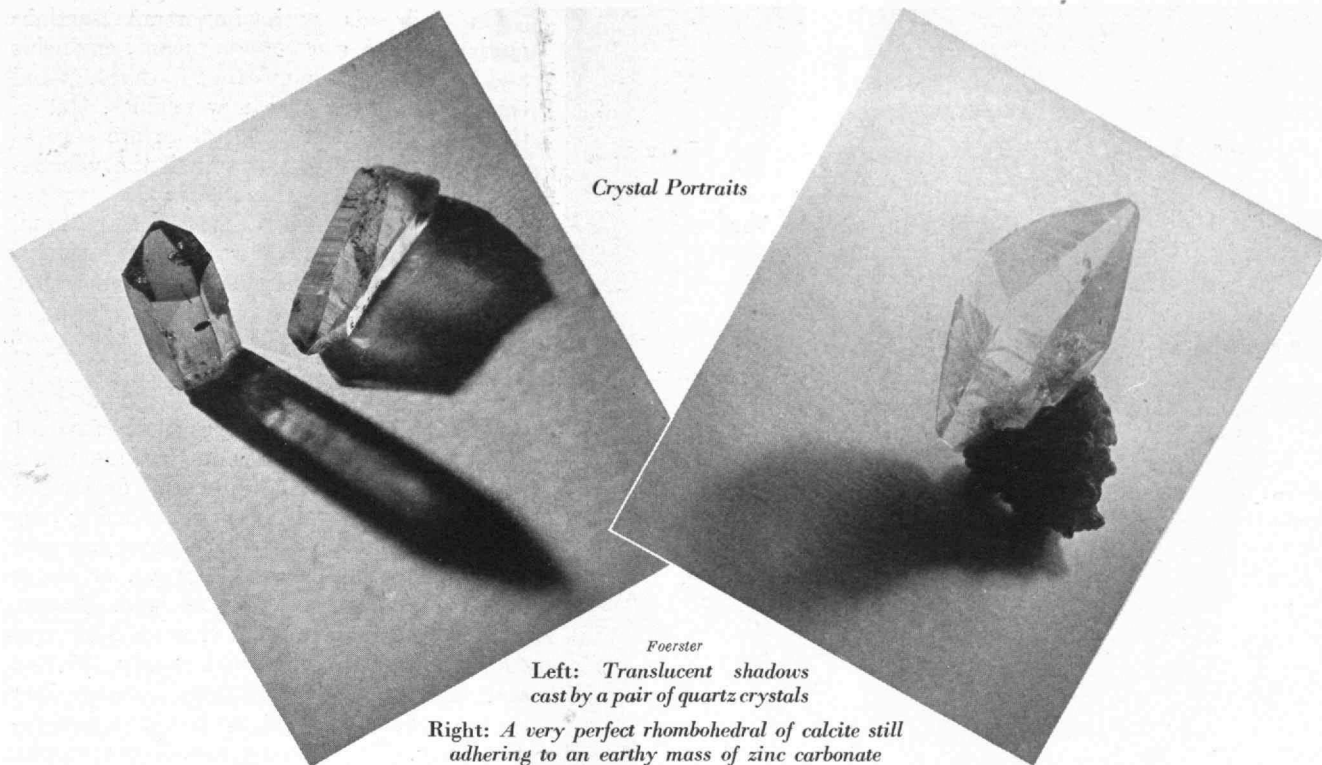
Possibly the railroad man has been influenced by the sailor who has always given ships feminine attributes. W. S. Scarboro, road foreman of engines for the Central Vermont Railway lightly suggests that the feminine gender is appropriate for locomotives because they wear "jackets with yokes, pins, shields, and stays. They have aprons, pumps, and hose. Furthermore, they drag trains behind them."

In his famous railroad story, ".007," the scene of which is laid in Boston, Rudyard Kipling personifies his locomotives. With one exception, his engines discuss each other in the masculine gender. A compound, contemptuously described as an experiment, is definitely feminine, a haughty person who "seemed to be talking halfway up *her* smoke-stack." The spick-and-span, eight-wheeled American type locomotive, .007, the leading character; a freight *Mogul*, the Pittsburgh *Consolidation*, a switcher and a commuting engine are, as Kipling makes them, "gentlemen" and "brothers among locomotives."

Railroad engineers are called by various names in different sections of the country. Those most commonly used are *eagle eye*, *hogger*, *hog head*, and *throttle puller*. Now and then one hears the engineer of the second engine of a double-header referred to as a *smoke-eater* or *cinder man*, while his engine may be called a *cinder trap*. A fireman is a *diamond pusher*, *tallow pot*, or *fire boy*.

Conductors are often addressed as *captain*, which may have been borrowed from the vocabulary of the sea, for as the captain is master of his ship, so the conductor is captain of his train. Brakeman is a term carried over from the days before air brakes, when members of the crew climbed to the tops of freight cars or rushed to the vestibules of passenger cars to apply hand-brakes when the engineer signaled a stop with two sharp blasts of the whistle. The slang names given to brakemen now apply chiefly to those in freight service, where they are known as *shacks*, *groundhogs*, *fielders*, *car catchers*, and *hind pins*, the latter indicating the

Crystal Portraits



Foerster

Left: Translucent shadows cast by a pair of quartz crystals

Right: A very perfect rhombohedral of calcite still adhering to an earthy mass of zinc carbonate

brakemen assigned to cover the rear of a train. A rarer name is *flag waver*, which suggests the practice of sending a brakeman out with a red flag to protect the rear of a train which has stopped on a main line.

Railroad officials are *brass hats* and their official cars are sometimes called *brass cages*. Yard masters are *switch hogs* and their offices are *knowledge boxes*. The yard clerk is known as a *number grabber* and a railroad clerk as a *paper weight*. A track laborer is referred to as a *Jerry*, *Snipe*, or *Gandy*, and a repair man, particularly the familiar, shadowy individual who inspects the wheels and bearings of cars when a train arrives at a station, is a *car whacker* or *tapper*.

Railroad police are known as *Cinder Bulls* and sometimes as *Hobo Night Hawks*, the latter term meaning a policeman disguised as a tramp. While the names given to tramps probably have various origins, some of them

were coined by railroad men. A *catter* is a tramp who rides the engine tender, while the term *to deck* means riding on the roof of a freight car. A *possum belly* is a tramp who prefers the roof of a passenger car, a precarious perch at best. A *passenger stiff* is a tramp who is satisfied with none but the fastest trains the line offers. *Ramblers* and *high rollers* are considered above the average and have a little money. A *fox* is an illegal passenger, and a *duster* is a railroad coach thief.

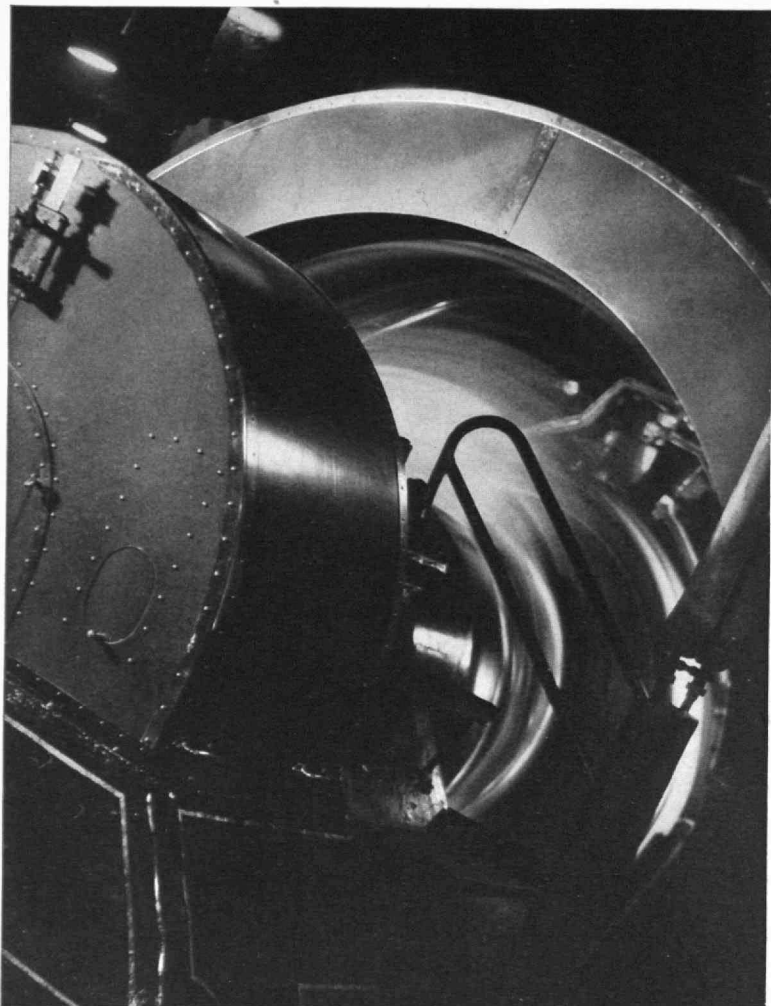
The act of getting on a train is described as a *flip* or *hopping the rattler* in the parlance of the tramps. To *hold the lady down* is riding the rods beneath a car, and a *scenery bum* is one who is suspected of enjoying the beauties of nature as he travels. A *gay cat* is an amateur, a tramp who will work if he has to, while a *fresh cat* is one lacking in experience in the ways of the hobo. A tramp's camp, sometimes seen near railroad lines, is known as a *jungle* and tramps gathered about a fire cooking a meal are called the *pot gang*. The *Hobo Short Line* is suicide in front of a train. The Boston and Albany Railroad was once widely known as the *Sacred Tract Road* because of freely given and pious advice to tramps.

Railroad men have their own pet terms for the various types of cars. A passenger coach is a *varnished car*, while an observation car is a *rubberneck car*. Box cars are known as *side-door Pullmans* and a steel coal car is referred to as a *whale belly*. Refrigerator cars are *reefers*, and the caboose of a freight train, once a term used to describe the galley of a ship, is variously known as the *dog house*, *hut*, *buggy*, and *crummy*. Gondolas are sometimes called *boats*. Empty cars, particularly on passenger trains, are *deadheads* and a damaged one is a *cripple*, which is marked for the *hammer track*, which indicates the repair shops. The railroad pay car is known as the *band wagon* or as a *family disturber*.



C. E. Patch, '02

Winter garments for Deer Rips at Lewiston, Maine



Action

Rittase

The various railroad operations have terms of their own. Switching is *shuffling them up*, and in breaking up a train in such operations, one often hears such phrases as *amputate three, saw two, hand me one, 'scuse four, or kick out one*. To cool a hot box is *freeze the hub* and to set the brakes is *anchor them*. A signal for an emergency stop is a *washout*, and when an engineer makes an emergency stop he is described as *winging her* or *putting her in the big hole*. The lights of block signals are often called *red eyes* and *green eyes*.

The path along a railroad is the *grit* and to jump from a train in an emergency is *hitting the grit*. To miss a meal is *flying light*, while going home after the day's work is *pin for home*. *Pull the pin* means to leave the service. To *blow smoke* is to use an engine for pushing a car and breaking the air line connection is *pulling a lung*. A *manifest* or *red ball* is a fast freight train. A *peddler* is a local way freight.

Every railroad traveler has seen a conductor raise his arm high above his head as a starting signal. In railroad parlance he is giving the engineer the *highball* or telling him to *hit the ball*.

No freight caboose is complete without its *bible*, the railroader's name for a deck of playing cards. The phrase *Pennsylvania feathers*, sometimes heard in a freight yard, means coke, and *lump oil* is coal.

On railroads with important sections operating with electric equipment, engineers and firemen are being weaned from steam and trained to operate the new engines. Out of this evolution of transportation are sure to come many additions to enrich the vocabulary of the railroader. Not even the imagination can suggest the additions to railroad terminology if the *silver sausages* in *three links*, the shimmering streamlined trains, come into general use.

Autobahnen

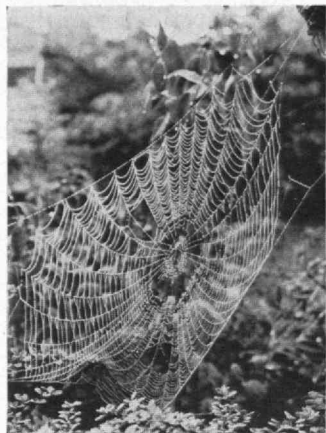
WITH the possible exception of Great Britain, nearly all countries have found road construction the quickest outlet for unemployment funds. This is especially true in the United States, where there are now over 3,000,000 miles of highways, or about 1.01 for each square mile of area. France, with a total road mileage of something over 400,000, Great Britain with nearly 180,000, and Germany with 150,000, average per square mile 3.12, 1.56, and 0.73 miles, respectively. Italy averages 0.42 per square mile though the total length of her highway system is under 50,000 miles, which figure is less than those of Australia or New Zealand.

Last October we made reference to the approaching completion of the Texas border-Mexico City section of the Pan-American highway which is to run on down the continental spine to Canal Zone, and to China's inter-provincial network of building being actively carried on by her National Economic Council. Lately there is renewed prospect that the London to Cape Town motor road, a route which would clock around 12,500 miles, is to be pushed. To drivers it would afford a hot, though thrilling itinerary around the eastern end of the Mediterranean, up the Nile Valley and via Kenya and the Rhodesias to South Africa. At Damascus there would be a fork and those bearing left would find a branch leading to Calcutta, on to Rangoon, and possibly someday to Singapore. Driving weather would perhaps be more comfortable upon the great national coastal highway through North Norway, *Riksveien*, as it is known. Much of this will soon be open, and practically the whole 800 miles of the route lie within the Arctic Circle.



Wide World

Massive doors cast in Paris for
New York's Cathedral of
St. John the Divine



Dew bespangles the spider's artful fabric

dividing opposing lines of traffic by park strips, and the like are methods now employed so frequently as to be considered as elementary in good highway design for heavily traveled through routes. Whether such of the newer thoroughfares, of which the Boston-Worcester turnpike is one splendid example, will fulfill the needs of motorists a decade hence or suffer the fate of the famed Columbia River Highway, remains to be determined. When built about a dozen years ago, that boulevard up river to The Dalles was thought to be positively the "last word," but now that the leisurely gaits of the early 1920's have doubled and trebled, it is hardly an efficient artery except for sightseeing. Thus present-day highway engineers courageously endeavor to display an open-minded foresight heightened by the lessons of the past.

With no intention to belittle attempts, such as the ambitious proposal recently outlined by the New England Regional Planning Commission, to improve our domestic highway system, it is nevertheless true that Germany and Italy, for many years laggards, seem to be most clearly pointing the way to systematic planning on a *national scale*. As might be expected, the methodical Germans have developed and are now actually carrying out plans for the most complete coordination.

Their super-highway express systems (*Autobahnen*), now in the making, will be the equal and perhaps the superior of the fastest and best roads now existing in this country. In 1932 there were 19 times as many people per automobile in Germany as in the United States and the ratio cannot have changed much since, though a removal of the horse-power taxation has done much to encourage the owning of motor cars. At first glance, then, it seems strange that a country with so much less density of automobile ownership and even less density of automobile traffic should set forth on a project far more elaborate than any undertaken here. The answers are logical, however, from a German point of view; they are both economic and political.

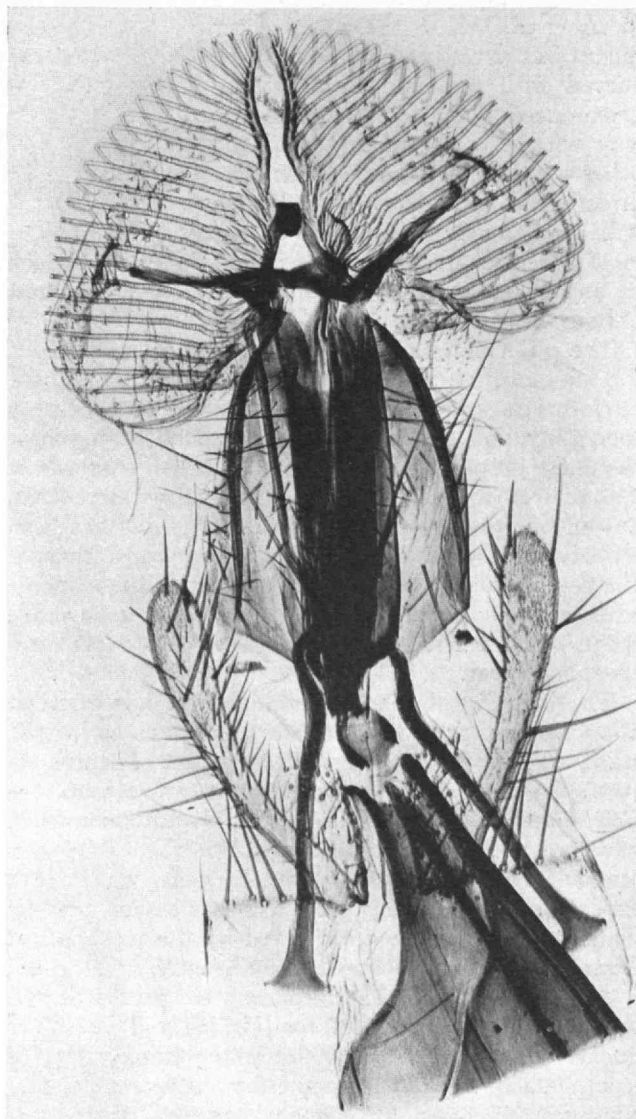
On the economic side, it must be remembered that German centers of population are much closer together than American; that the streets of these much older cities are winding and narrow; that on the streets are many buildings of historical importance which cannot

Turning aside from such "highways to adventure," we find engineers bravely and boldly facing the problems where population is congested and travel is heavy. Here it is now thought sound to assume that provision must be made for "cruising" speeds of at least 90 to 100 miles per hour. Elimination of grade crossings, easing curves and crests, by-passing towns and danger traps inherent in the terrain,

be destroyed to make a Sunday motorists' holiday. On the political side, the new program has been, in large measure, developed as a result of the subsidies to the railroads brought about when they were forced to bear the brunt of Germany's war debt payments. Nor can the military importance of the new highways be neglected for the anxious fortnight in which France moved 190,000 troops and 22,500 tons of munitions over the 40-mile highway which was the sole link left between Bar-le-Duc and Verdun, is still remembered on both sides of the Rhine.

Briefly, the new express system proposes to build roads as straight as may be from focal point to focal point. They are to have two lanes of traffic in each direction separated by a 10 to 16 foot grass strip; five-foot shoulders will be provided and the finest types of road surfacing will be used. There will be no grade crossings and centers of population will be avoided. (The by-pass is impossible in Germany because of the closely meshed nature of the centers; the road would be a perpetual by-pass.)

So far the roads resemble our best ones but they



The microscope reveals the blow-fly's tongue. The small tubes are ducts through which the fly sucks his liquid food

go further. Like ours they will pay some attention to the beauties of the terrain through which they pass but considerably more attention has been given to night driving. The German engineers have devoted intensive research to stationary lighting (such as our sodium lights now infrequently used), but apparently have come to the conclusion that, for the present, this art is insufficiently developed to warrant incorporation in the system, so they have turned to devices for cutting down the interference of the approaching headlight. The sides of the roads will be planted only with bushes of types which will tend to reflect light back to the road and these will also serve as snow fences, staggered to break up drifts in winter. Across the grass strip from time to time they are planting cross hedges higher than motor lights which will at once serve to keep the light of an approaching car off the windshield and better to mark the curb to the left of the driver. Road surfaces will not be of light-absorbing types, a frequent source of annoyance in America. Where the roads enter mountains or valleys, and are perforce curved with the light hazard more pronounced, they will be made one way with a corresponding road the other way in some other location. The directions of the separated roads here will be planned with a view to the most effective development of mountain scenery which in any given canyon or slope is usually at its best only in one direction.

These German highways go still further in solicitude for the motorist. The truly straight roads will be bent at intervals of two-and-one-half miles to break up monotony and the planting will also be changed for the same purpose. They will be designed for speeds of 110 to 125 miles per hour, considerably more than any of our present roads allow although, as has been stated, latest plans here call for similar consideration. Curves and width will both accommodate these speeds with corresponding safety for the driver at an average speed of 60 miles. Tangents between two curves will exceed 600 feet.

The building of the express highways has been set apart from other highway construction such as federal, state, and secondary road work by an act of March 26, 1934. By this act a new corporation was set up, the *Reichsautobahnen*. This corporation is autonomous in government and derives its funds from the sale of government bonds to be amortized by tolls, which, it is expected, will be freely paid. The gas saving thereby made possible will be appreciated by the motorists of Germany, where gasoline is exorbitantly high-priced.

As a first effort, the program contemplates the building of 3,800 miles of road which will be subsequently increased to 7,500 miles, the employment of from 500,000 to 600,000 people for ten years, the consumption of over 100,000,000 bags of cement, of 1,000,000 tons of steel, and the transportation of one-half billion cubic yards of earth.

The roads will not be built in competition with the railroads. In fact, railroad engineers are to be used for the design of grades, bridges, and approaches, and the system will be linked with the rails for the better exploitation of freight traffic.

The German effort is but the largest and most spectacular of the various unitary efforts of continental Europe which follow in general an international plan proposed by Senator Puricelli of Italy, involving upwards of 10,000 miles of road. Holland has also begun construction of similar roads which will link with the German speedways.



Ralph A. Barron

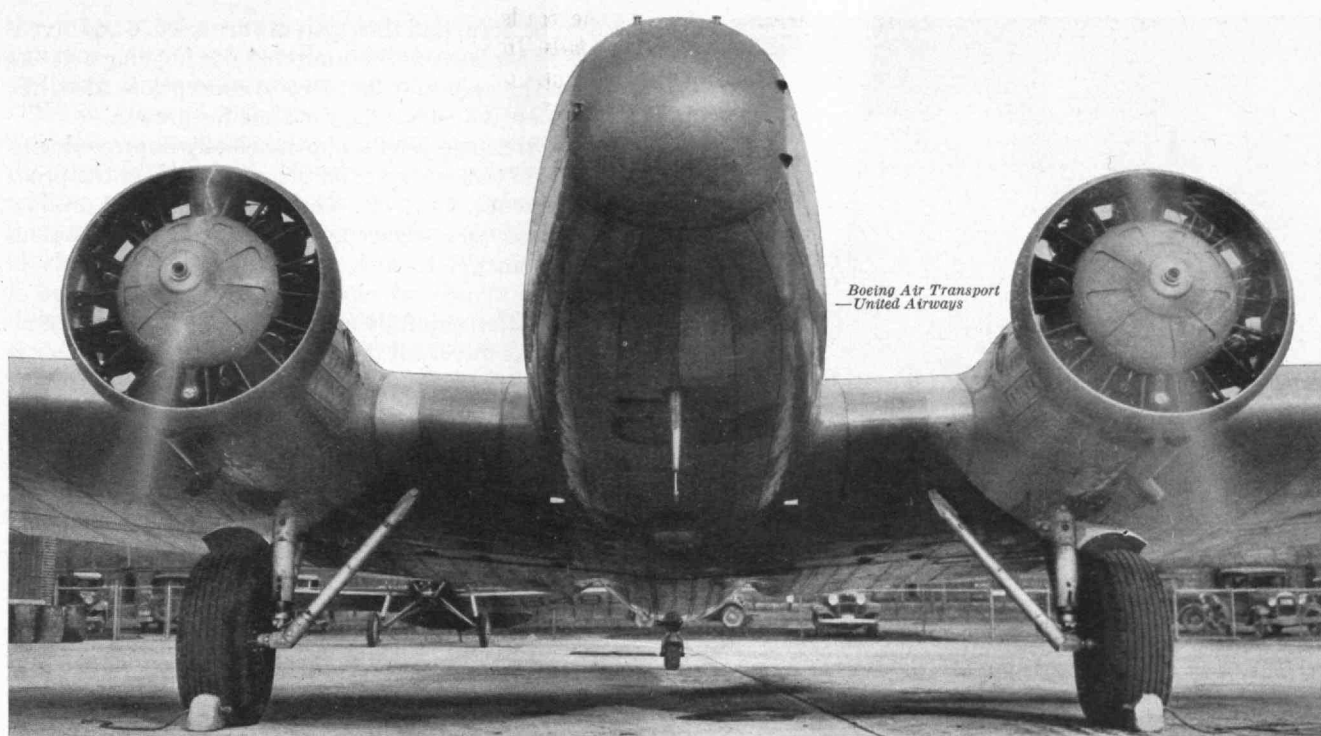
Although some construction is being carried on in each of the 11 engineering districts, as would be demanded by the rather even geographical distribution of unemployment in Germany with its corresponding political pressure, the student of militarism cannot be oblivious of the strategic nature of the major first links in the chain. Already under construction are roads connecting the North Sea port of Bremen, with a Baltic outlet (Lübeck); Berlin, with a second Baltic port; Stettin, with a continuation toward the Polish frontier on the boards; Munich to the Austrian border; Frankfurt to Karlsruhe and thence toward France; Dortmund toward Cologne and thence, of course, to Aachen, France, and Belgium. The only central roads of any importance now being built are from Hanover toward Berlin which will become part of the chain linking the capital with the French frontier, and Dresden towards Leipzig which will fall into one of the roads going toward Poland. The Polish Corridor is not forgotten and some construction is also taking place in Upper Silesia perhaps against the day when the northern chain may be reformed. Even in a major civilian project, involving primarily economic and domestic political planning, Germany does not forget the possible dawning of a brighter day for her armed forces.

Origin of Our A.B.C.'s

SO MUCH that represents progress in civilization has an engineering background that it is not surprising to hear the suggestion that a miner invented symbols from which the alphabet of today has developed. Professor Martin Sprengling of the Oriental Institute of Chicago University has found evidence that a Bedouin foreman, who long ago toiled on the Sinai Peninsula, tired of making marks on a tally stick and developed symbols to keep records. His name was Sahmilat.

Out of these crude symbols made with some type of ink and a reed pen-brush, through a long process of modification and simplification, the alphabet of today has come. From Sinai it spread to Phœnicia and on to the westward through Greece.

Recent archaeological investigations indicate that an alphabet was in general use when the Israelites trekked into the land of Canaan.



Put Science to Work!

The Public Welfare Demands a National Scientific Program

BY KARL T. COMPTON

EDITOR'S NOTE: When President Roosevelt's Science Advisory Board, of which Dr. Compton is Chairman, issued its first report last month it was evident that a long step had been taken toward reviving and coordinating the government's scientific activities. Below, Dr. Compton proposes, and, we hope, forecasts the next step. His plea for an intelligent attitude toward Science on the part of government was written at the suggestion of the *New York Times* and *The Review* joins with *The Times* in publishing it because it may become an historic document in the annals of American Science.

THERE are some striking anomalies in our national policy which suggest that an important prerequisite to sound and permanent economic recovery has thus far been neglected. I refer to the contributions to national welfare which may be expected of Science, if Science is really put to work.

It is well known that Science has created vast employment, yet it is not being called upon or encouraged now to create new employment when this is desperately needed! Perhaps this is because of realization that time is necessary for the development of a scientific discovery into an operating industry, a time required for technical development and for "creating" the market. If so, it is reminiscent of situations in the late war in whose early stages numerous suggestions of powerful new devices were dis-

carded on the ground that the war would be over long before those devices could be perfected, devices which, however, actually became deciding factors in the end.

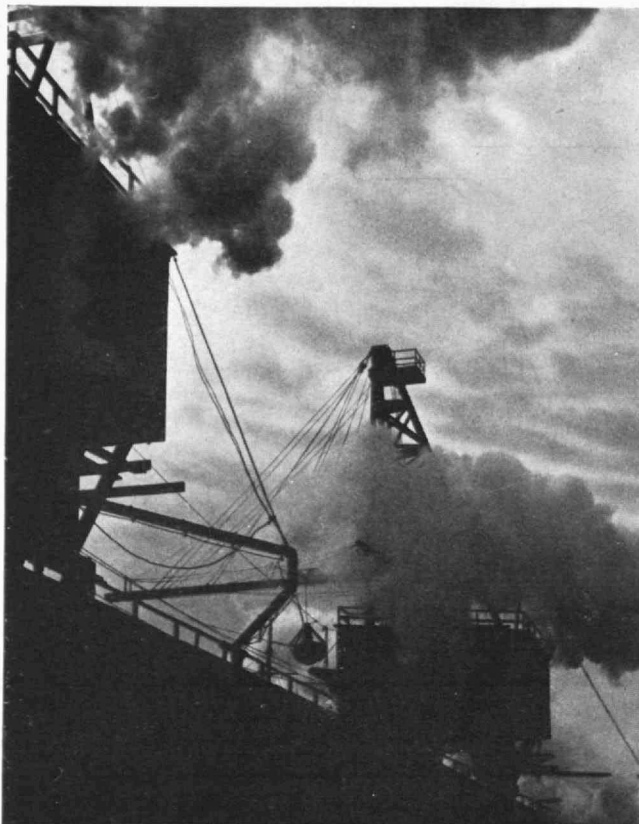
Perhaps this neglect is a result of the early depression hysteria which, looking for a scapegoat, sought to place on "technology" the blame for the crash, forgetting that overproduction arises from competition for profits and not from science, that underconsumption arises from a paucity rather than a plethora of desirable products of science, that the labor-saving devices that spring from science are inherently desirable if used properly, and, most important of all, that the overwhelming influence of science has been to create employment, business, wealth, health, and satisfaction.

Perhaps, again, the laboring man has been distrustful of science because he can trace to science certain of his personal difficulties; yet he should not forget that, in this scientific age, there is a far more even distribution of wealth and opportunity in the world than in any era since the dawn of history.

A colossal program of public works construction has been authorized, designed to give useful employment and at the same time to improve the "physical plant" of the country by bridges, dams, roads, public buildings, and the like; yet no provision is made, in this program, for scientific or en-



Willoughby



Porter

"A proper permanent policy . . . should embrace both governmental and non-governmental agencies."

gineering research looking toward better public works in the future! In fact a group of the nation's leading technical men drew up a program to provide employment in the solution of many technical problems of vast importance to the public welfare, but this program had to be abandoned because there was no authorization for such activities in the National Industrial Recovery Act. The picture of such huge expenditures of money and effort for construction, with not even a small provision aimed at technical progress, is heart-rending to the creative scientist, engineer, or industrialist, who has come by experience to realize and to take advantage of the permanent value of research.

The aggregate budgets of the government's scientific bureaus amount to about half of one per cent of its so-called "balanced" budget, and if its non-budget emergency expenditures are considered, the fraction spent is much less than half of one per cent. And relatively little even of this is for research, the greater part going into surveys, testing, and other technical services of a somewhat routine type. Contrast with this the practice of our leading industrial organizations, who have found it advantageous to devote several per cent of their income to research and development! Should our government lag so far behind the best practice of private agencies?

The Administration is seeking means to stimulate the development of new industries, yet it has not taken steps to stimulate the scientific work from which new industries may be expected to spring! New industries are like babies; they need shelter and nourishment, which they take in the form of patent protection, financing, and chance of reasonable profits. But, before all, they

need to be born, and their parents are science and invention. Neither laws, nor committees, nor juggling acts can perform the necessary first step of conception. Also, like babies, new industries require time for growth.

There are some people who are chiefly impressed with the fact that efficiency experts have found, in the products of science, ways of lowering labor costs of production, and so view science as a menace. I believe that an adequate answer to such argument is found simply in the census figures, which show that the percentage of the population gainfully employed in manufacturing industries has increased during the past 50 years. This is due to two positive factors which have outweighed the negative factor of replacement of hand by machine labor; the more widespread use of products resulting from their cheaper production and the creation of entirely new industries. But there is more than this to consider. Labor saving and quantity production devices are largely mechanical, and the science of mechanics is already well established. Economic pressure will continue to force the development of labor-saving devices on the basis of our present mechanical knowledge, independently of any further scientific advances. Future scientific discoveries, however, are most likely to be in other fields than mechanics, as in chemistry, electricity, biology, or medicine. Thus the results of future scientific work are likely to be preponderantly on the side which is quite generally conceded to be beneficial. Finally, even if we were to grant the economically disturbing effects of scientific progress, we should still face the immediately practical fact of unemployment and concentrate on an attempt to make science do what it has done many times in the past; *i.e.*, give birth to some great new industries.

As a move toward balancing its budget, the government has greatly curtailed the appropriations for its scientific bureaus, by amounts running as high as 50%, thus forcing these bureaus to drop many hundreds of scientists; yet at the same time it has provided vast emergency employment, much of whose results are relatively of far less value to the public than the work which was discontinued! And the displaced, trained scientists have been thrown on the unskilled labor market, where they frequently receive government pay in excess of that which they were earning in their professional work under the Civil Service! There are certain good results of this move, such as an enforced purging of government bureaus of obsolete or relatively unimportant activities; but there have been three unnecessary misfortunes: less valuable and less efficient work has been substituted for work of greater importance, still at government expense; the scientific and technical strength of the country has received a serious blow at a time when its services are more than ever needed to lay a basis for the hoped-for return of prosperity; a valuable public investment in the training of these men is being lost.

In pointing out these anomalies I do not wish to detract from the praise due the government for its prompt and energetic efforts to meet a desperate situation, nor would I criticize it if not all of its efforts have been successful. There was little time for consideration and things had to be done on a big scale. A certain amount of experimentation was necessary, and one of

the inherent elements in experimentation is that its outcome cannot be exactly predicted; if it could be predicted it would not be an experiment.

What I would criticize — and this criticism is intended to be constructive — is that the government's program shows a lack of balance and appreciation of relative values in its comparative neglect of science. In this connection, note by contrast what is being done in other countries.

Russia, seeing what science has done in raising the standard of living in other countries, especially in our own country, is centering her whole economic program on science. She has used, as the central feature of this program, the Academy of Science, founded by Peter the Great. Under this have been established more than 200 great Research Institutes for work in pure science and engineering. Her annual appropriations for these institutes are far larger than any other item in her budget, even the military and defense item. Her scientific laboratories are the best equipped in the world at the present time. Though short of trained workers, they are already turning out some first-class work, and a well-considered program of selecting and training research workers has been instituted.

Great Britain also has taken decisive steps to utilize science for social and economic improvement, despite the fact that she was harder hit than we by the war, her unemployment crisis came sooner, her taxes are higher. She has called her leading scientific men to advise her Privy Council on scientific and technical policies through an Advisory Council headed by Britain's most noted scientist. It is on advice of this council that the programs and budgets of the government's scientific bureaus are determined. The government, furthermore, appropriates about a million pounds annually, to be used for stimulation of research. On advice of the Advisory Council, grants from this fund are made for research to educational institutions, scientific societies, and government bureaus, for research fellowships, and for support of industrial research by trade associations, provided these associations match the grants with similar contributions from their own funds. In this latter way, for example, a great program of textile research has been inaugurated.

Italy has mobilized her research facilities in a broad-scale effort to rehabilitate her economic position, and to counteract her deficiency in raw materials through application of her "brain power" to the most effective use of what she has. The government has appropriated large sums for the better equipment of university research laboratories, and all work in these institutions and in governmental laboratories is supervised by a National Research Council. Furthermore, no governmental financial assistance is given to industries unless this Research Council certifies that the industry maintains a progressive policy of research and development.

Until recently Germany led the world in her sustained efforts to maintain a strong economic position through scientific research, notably in the fields of chemistry and metallurgy. Every one knows the success of this policy, until it was largely wrecked by other circumstances. Her scientific strength, however, is still probably Germany's strongest economic asset.

Japan, for years, has been bending every effort to introduce Western technology into her industrial procedures. Begun as a policy of copying technical processes and products which had been developed elsewhere, it was accompanied by an intensive program of scientific education of her own scholars. She is now in a position to lead as well as to follow in scientific work of high quality.

Compare this picture with that of our own country. As soon as we got into trouble we cut our governmental expenditures for scientific work *more* severely than those of any other government activity. We gave no consideration either to unemployed scientists or to the public value of their work in our emergency measures for relief of unemployment or for economic rehabilitation. And yet we pride ourselves on being the most advanced nation on earth!

The truth is that we have been fortunate enough to have great natural resources, which we have exploited riotously; we have had a pioneering spirit which has bred some great inventors; this same pioneering spirit has developed some industrial giants who have plunged into big things and have brought "quality production" into operation; we have been blessed with a few great philanthropists whose altruistic vision has led them generously to support scientific work and other activities for human welfare in universities and other private institutions. But, as a people, and therefore as reflected in our national policies, we have been more lucky than intelligent. Now that we are no longer able to thrive on the unrestricted exploitation of the gifts of Nature, it is imperative that (*Continued on page 152*)



Galloway

"Complete electrification of the country, including farm, home, and factory, is a great goal . . ."

Philatelic

Technological Achievement as

By H. E.



PLATE A

LAST month, as recorded in the December Review, it became possible to mail letters or parcels from any large city in Australia and have them travel westerly the entire distance by scheduled air routes to any large city in the United States. Quite naturally the start of such an air post service piques the curiosity of the world's stamp collectors and philatelists.

These terms, parenthetically, are by no means synonymous, for too many collectors are primarily interested only in the accumulation of stamps. True philatelists, on the other hand, are more pedantic. They study stamps, how they are printed and perforated, the kinds of ink and paper used, the reasons which have impelled governments to emit the various issues, and the historical, geographical, and ethnological data which may be gleaned from the designs of the stamps themselves or from the various postal markings of cancelled items, especially when "on cover." Even engineers and scientists can hardly be unappreciative of the philatelic possibilities afforded by postal items which can trace their origins, as suggested in this article, to technological achievements.

At this writing, at least one special stamp, an Australian (denomination 1s. 6d.), has been announced for the new air line, and others will doubtless come. With the service under the British flag, new issues brought forth are likely to be of a high order, since Empire postal paper, unlike that of many other countries, has been conservative in design. Portrait heads of the reigning sovereign

PLATE B

Top: New Brunswick's 1860-model locomotive, the first "engineering stamp"; one of Belgium's 1934 "parcel post" series. Below: the Egyptian Railway Congress set issued January 19, 1933



have prevailed and, save for the ghastly 1911 Georgians of the mother country, which were quickly withdrawn after scathing treatment at the hands of editorial writers and even caricaturists, the portrayals of Victoria, Edward VII, and George V have been uniformly worthy.

But there have lately been departures from this portrait practice in certain commemorative issues of the dominions and crown colonies and these have been distinguished for their chaste, finely colored, and handsomely executed designs. Australia, which as one of the line's major terminals, may be expected to issue stamps in its honor, is no exception to this Empire conservatism. Philatelists, though well aware that from her wide, open spaces — the continent is as sparsely settled as Wyoming — there have emerged many things queer besides kangaroos, odd "labour" laws, and, very recently, a profound contribution to the annals of agrarian alchemy in the shape of a process purporting to transform bananas into coffee, do not, therefore, apprehend the appearance of any outlandish Australian air mail stamps.

Already the Dominion "down under" has to her credit several highly attractive air post stamps, including her first, designed by R. A. Harrison and Harold Herbert, which was used in the Perth-Adelaide service beginning on June 2, 1929, and the 6d purple issued March 19, 1931, to honor the world flights of Kingsford-Smith in the *Southern Cross*. These were recess-printed at Melbourne by J. Ash as were those to celebrate the opening of the great bridge at Sydney on March 19, 1932. The Sydney Bridge design is one of the best examples yet brought forth of picturing an engineering feat on postage paper. It easily ranks with the 12¢ gray-black Canadian of the Quebec Bridge, recess-printed by the Canadian Bank Note Company and issued August 1, 1929; the 2d black-brown of October 15, 1930, typographed in Dublin to celebrate the completion of the Shannon hydroelectric scheme; and the \$2 orange-brown of our own 1898 Trans-Mississippi Issue which shows the Ead's Bridge at St. Louis.

The above-mentioned are illustrated in Plate A with the exception of the \$2 stamp which, like all those of the

Engineering

Recorded on Postage Stamps

LOBDELL

United States, may not legally be reproduced in this country. Such a prohibition is most unfortunate, for the influence of applied science upon philatelic design has been particularly marked in our own issues where it had a genesis in two numbers of the 1869 issue: a puffing, wheezy, wood-burning locomotive of the day on the 3¢ ultramarine; and the S.S. *Adriatic* on the 12¢ green. Prior to this time New Brunswick, which had its own postal paper up to 1867 when it joined with other provinces in the Confederation, issued in 1860 a 1¢ brown-violet number picturing a locomotive and on the 12½¢ blue of the series there was an early steamship which also depended partially on its sails. The first of these was apparently the earliest stamp to exhibit an engineering influence in its design. Certainly it was the forerunner of many "railroad stamps," some of which are pictured in Plate B.

From the 1860's, there was a lull until the appearance of the U. S. \$2 of 1898 and the Pan American Issue of 1901: six stamps with vari-colored frames and black centers, the subjects being "fast lake navigation," an express train, a decidedly pioneer automobile, a bridge at Niagara, the Soo locks, and a liner (possibly one of the American-built transatlantic liners, *St. Paul* or *St. Louis*).

With but a few minor exceptions, these two New Brunswick and nine U. S. designs were of world-wide uniqueness as the new century dawned: the S.S. *Arava*, a two-funnel ship with sails on the 12¢ blue Hawaiian of 1894; a railroad bridge on the 50-c. denomination of the Congo series of 1894 and a stern-wheeler on a 10-fr. stamp issued by Congo in 1898, the head-on view of a railroad train being pulled by a "balloon-stack" locomotive on the Honduras issue of 1898, and the Nile steamboat of the Sudan postage dues which appeared in January, 1901. With a few further exceptions, these eleven continued without serious challenge for upwards of a dozen years longer: two Colombians, one Turkish, and two Uruguayans, all of which carried battleships; the 10¢ Newfoundland of August, 1910, showing the paper mills at Grand Falls; the various German colonial issues with their line-drawings of the *Hohenzollern*,



PLATE C

British Guiana recognizes gold mining in her new pictorial series; Belgium accords philatelic recognition to Stratospherist Piccard; one of Italy's 1932 series issued on the 10th Anniversary of the March on Rome. At the right, two Soviet stamps: top, one of the four of the 1929-30 Industrial Loan issue, the design being symbolical of industry; below, a 1931 air post stamp suggesting the construction of a dirigible

yacht of the former Kaiser; and the 2¢ carmine of the U. S. Hudson-Fulton Issue of 1909, S.S. *Clermont*.

In January of 1914, Egypt, in a pictorial issue of which the subjects were for the most part ancient monuments, assigned the highest value, 200 millièmes, to the Assouan Dam, which it dressed in what the American Scott's catalogue calls "plum," but which the British Gibbons' more precisely describes as "marone" (see Plate A). In 1915 Mexico used the Vera Cruz light-house on a 1-peso stamp and in that same year the Republic of Panama brought out the first of a series of seven notable designs showing features of the canal which bears its name (Plate E). These Panamanians were at the time also surcharged for use in the Canal Zone. Subsequently on several of the specially designed stamps of the Zone the Gaillard Cut is shown, notably on the air post series of 1931 designed by Meade Bolton, '16. Mr. Bolton is also to be credited with the memorial for the late Colonel Goethals, a 3¢ number placed on sale last August 15. But these Bolton designs, like other U. S. items, may not be here reproduced.



PLATE D

At top: Germany honors her Graf Zeppelin. Below, left to right: one of Egypt's Aeronautical Congress issue notes the DO-X; France pictures an ancient engineering marvel; the Falkland Islands, Centenary series; a Chinese air post stamp



The Canal, however, was first pictured on the 2¢ carmine of the U. S. Panama-Pacific Issue of 1912-1913, and concurrently there appeared the first stamp showing an airplane. It was not on an "air post" stamp either, but a 20¢ carmine and rose design forming a part of the initial U. S. Parcel Post series — a series which also included numbers illustrating a mail train, a steamship and mail tender, and a more up-to-date automobile than the 1901 Pan-American model. Our first air post stamp was the famous 24¢ carmine rose and blue, issued May 13, 1918, and used May 15 on the first official flights between New York, Philadelphia, and Washington. Later that summer a 16¢ green was added and, in December, a 6¢ orange, the common design of the three being an airplane carrying mail. A sheet of the bi-colored 24¢ with the airplane upside down slipped by inspection, thus giving rise to the well-known "error," single copies of which, at auctions, have fetched over 13,000 times the stamp's face value.

During the immediate post-War years there are to be found, aside from early air post issues, scattered instances where the influence of engineering accomplishment prevailed upon the stamp designers. In 1919, Azerbaijan (later to be united with Armenia and Georgia into an entity known as the Transcaucasian Federated Republics) drew inspiration from the Baku oil fields, and Guatemala put out one stamp picturing a radio station and another showing "a railroad bridge to the penitentiary." In 1921, Japan had a set of four showing the battleships *Katori* and *Kashima* to mark the safe return of the then Crown Prince from a European tour; Luxembourg used a view of factories at Esch; and the first of the Saar issues became current. These latter have cleverly propagandized the mining wealth and industrial development of this now soon-to-be-plebiscited territory. Two more ships came along in 1924: a crudely-drawn liner on a 10¢ registry of Liberia, and a finely-drawn freighter on a series for Nauru, a Pacific island midway between the Marshall and Solomons, which, as a German possession having valuable phosphate deposits was seized by the Australians in 1914 and, after the War, was mandated under New Zealand.

Our domestic issues for ordinary postage subsequent to 1925 have included three 2¢ carmine rose commemoratives: of Edison's First Lamp, of the canalization of the Ohio, and of the Wright biplane on the 25th anniversary of its first flight at Kitty Hawk, N. C. Later foreign regular

issues where engineering influences may be traced have been numerous, some of the most striking being shown in Plates A, B, C, and F. Others worthy of mention are the 1932 "Wealth of Colombia" Issue which paid tribute to emerald, platinum, and gold mining; Peru's similarly timed stamps, one of which shows an oil refinery; the Belgian 1929 semi-postal of a Red Star liner at Antwerp and her 1930 Liège Exhibition stamp honoring Zenobe Theophile Gramme and his dynamo; the two very recent Italian Antonio Pacinotti numbers emphasizing his rival claim to have invented the

dynamo; railroad commemoratives by Guatemala and San Marino and, especially, the Rivas and Leon-Sauce issues of Nicaragua, and the new 20c. Swiss stamp of the Gothard railroad; the current San Rafael and Generalissimo Trujillo bridge designs of the Dominican Republic; four of the 1928 "men of science" issue of Holland with portraits of Minckelers, Boerhave, Lorentz, and Huygens; one of the two latest stamps of Holland, a commemorative of the tercentenary of Curacao showing a cargo liner in the unlovely harbor of Willemstadt against a background of oil tanks; several of Newfoundland, and others of Italy and Russia, which has this year noted the centenary of Mendeléeff, besides those

reproduced herewith. It is also pertinent to make passing reference to at least one of the several cases where an ancient engineering marvel has served as the basis for the design of a stamp, the French 20-fr. red-brown of 1929 showing the Pont du Gard at Nîmes; and to at least one example — and one of the finest — of the many "map" stamps, the 3d violet and black of the lovely centennial 1933 issue of the Falkland Islands. These two appear in Plate D.

It is aeronautical engineering, however, which has been most bountifully treated by the stamp designers, and rightly so, since aeronautical engineers have created an entirely new division of postal paper. As a postal marking on a letter just received from the Kuala Lumpur in Federated Malaya says: "Time Flies — Use the Air Mail & Catch it Up."

While the United States was first to print an especially designed air post stamp, Italy, by surcharging a special delivery of 1903, made the first item ever designated by

any government as a stamp for use on air mail. This was issued May 22, 1917, for a flight between Turin and Rome, and as early air post stamps go, it is curiously offered at low prices by stamp dealers even today. The next air post (Cont. on page 150)



PLATE E



PLATE F

One of Italy's special postal emissions for the flight of Italo Balbo's squadron to the Century of Progress in 1933. The first section displays the Italian flag in national colors and had no franking value although without it a letter would not have been carried.

The second section bears the ordinary postage value and the third the air post fee

Into the Depths of Time

When Did Life Begin?

BY F. K. MORRIS

WHEN we consider the spaces where the stars move, we are troubled by the thought that space must have boundaries. We put down a digit and add noughts after it, three by three, until the dimensions of the universe look like the nation's expenditures, and still we are likely to think there's a limit in the heavens. But the moment we picture a boundary to space, we have to ask what's on the other side. The great god Einstein himself doesn't help us here. Whether space be curved or straight, we must believe that space has no end; and there we find ourselves looking into the Infinite — which is Latin for the Endless.

Through all space, there extends that stranger mystery called "time." Our human brains are made a little lower than the angels'; and that's why we look for limitations — because we ourselves are limited. Just as we try to set bounds to space, so we try to think of a beginning and an end of time. For we think the universe is like our earth, where all our little affairs have a beginning and an end. Our earth's age is now running into the billions like our taxes; and before the earth there was our parent-star the sun; and before the sun there was its parent the nebula; and before the nebula — well, time goes back before any beginning, and eternity goes forward forever. Time and eternity are one — a stream flowing through space. Time shares with space the quality of infinity. As space is without limit, so time is without beginning or end.

But time in the universe is inconveniently large for everyday use, just as light years are too big for measuring earthly real estate. Even though we understand the truly endless star-time, we humans live by earth-time. So for mere mortals who like dates, we are trying to figure out a beginning-date when the earth was made, and we'll write "The End" when the earth blows up with a bang, or crashes back into the sun — if it ever does.

When the geochemist proves that the earth has rocks twelve hundred million years old — does that carry us back to the earth's beginning? Why, no. That's the age of certain rocks lying today on the outside of our cool, strong, wet world. These rocks were once hot liquids — the very juice of the earth — a few dozen miles under the cool crust. And twelve hundred million years ago the hot juice stewed upward into the crust and dissolved the solid rock, just as hot coffee will soak a lump of sugar — only the earth-juice took a lot more time to dissolve a part of the rock-crust. Gradually the hot liquid crystallized and became granite, containing the radio-active atoms whose orderly changes tell the time since the granite crystallized. But that's the age of the *granite*, not the age of the *planet*.

When we know the age of the ancient juice that is now granite, can we tell the age of the rocks which the

granite invaded? We can only be sure that they are much older than the granite. And what kind are these older rocks? The answer is surprising: before the granite-juice came these rocks were thin layers of clay in shallow seas; sands that once were beaches; limestones that once were shells of tiny living creatures; and even boulders that were carried by ice. Twelve hundred million years ago the earth had oceans to receive those clays, and lands whose rivers washed down the clay and sand. The ocean teemed with life, and some parts of the land were covered by snow and ice. Twelve hundred million years ago, the earth was as cool, as wet, as hospitable as it is today. Its crust of cold, strong rocks covered like a thick blanket the hot juice of the earth's inside. And life was already old.

When did life begin? Living creatures were big enough to need shells and skeletons full thirteen hundred million years ago. There were no clams or snails or corals at that time, but there were little floating animals and plants ranging downward from as big as a pin-head; and that's very big, when you compare a pin-head with bacteria or with still smaller living things the size of a molecule. Probably a billion years of quiet growth led upward from the *beginning* of life to the little sea-plants and sea-animals of thirteen hundred million years ago. And yet, the earth was cool when life began. The plants that live in the hot springs of Yellowstone Park are not at all the first forms of life; they've merely learned to live in hot water exactly as you and I have done since the Depression started. But they came from cool water originally. When you find blind fishes in a cave, you don't claim they were created before there was light; you say that the ancestors of blind fishes had eyesight, but have lived in caves so long that their descendants have become blind. Even so, the cool water algae have gradually adapted themselves to the hot water of the Yellowstone; and they've been there only a few million years.

But the earth was flaming hot when the sun flung it out into space. It took a long time to cool down until the first crust of hot rocks formed on the fiery juice within; until the first sea was boiling hot, even as the Walrus stated; and only pigs with wings would have escaped cooking. Long indeed was the time before the earth's crust became so thick that the molten juice gave no appreciable heat to the surface; and the land and sea were warmed only by the sun. All this happened before there was life, and long before the oldest rocks which we now know were laid down in the sea. We know rocks fifteen hundred, even eighteen hundred million years old, but not one of them tells of the time when the earth was flaming hot. Not one is even a part of the original crust that formed on the molten earth. All belong to a time when the earth was as cool as it is now — an essentially modern world. (Concluded on page 152)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

January Docket

THE Review pays tribute to Dr. Allan W. Rowe, '01, bears witness to his great contributions to the welfare of Technology.

It presents also in this section news reports on the following wide variety of events and conditions at the Institute: *A Second Bevy of Balloons Sent to the Stratosphere to Bring Back Weather Data* (142); *Technology Draws Students from All Parts of the World* (142); *The Department of Mechanical Engineering Widens Its Facilities for Research and Teaching in the Field of Testing Materials Fabrication* (143, 144); *The Architectural School Is the Recipient of a Large Gift of Books for Its Library* (145); *A New Series of Popular Science Lectures Begins with Capacity Audiences* (145); *Our Placement Officer Describes How M.I.T. Helps Its Students to Get Better Jobs* (145); *Visiting Committees Report on the Departments of Biology and Public Health* (145) and *Electrical Engineering* (146).

Allan Winter Rowe

WHEN Allan Winter Rowe, '01, died on December 6, the Institute and the Alumni Association suffered an irreparable loss and every Technology man lost a friend unstinting in his friendship. He was a member of innumerable (seven at the time of his death) Alumni committees, Secretary of his class for 13 years, member of the Alumni Advisory Council on Undergraduate Athletics for 23 years, member of the

In the death of Dr. Allan Winter Rowe, Technology has lost one of its most devoted and helpful alumni; intercollegiate athletics one of its ablest advocates of clean sport for sport's sake and not for profit; and medicine a distinguished investigator in that difficult but important field dealing with glandular functions.

Dr. Rowe had been a member of the Institute's Corporation since his retirement as President of the Alumni Association in 1933. His interests have centered chiefly in student athletics and welfare and in the Department of Biology and Public Health. His contacts have been vigorous, positive, and very helpful.

All who knew Dr. Rowe intimately, or worked with him, came to respect and love him because of his sincerity, unflinching honesty, and unselfishness and generosity in his work for those organizations or activities to which he has devoted his entire time and energy.

Our feeling of loss is intensified by the suddenness of his passing, in the very midst of activities which he felt to be the most important of his life. — PRESIDENT
KARL T. COMPTON

Alumni Council for 24 years, President of the Alumni Association during 1932–1933, and one of its representatives on the Corporation since 1933. In all of these activities his zeal was unflagging, his contributions incalculable. During his presidency he made 31 visits to Alumni Clubs and so vitalized the Association's work that its effectiveness was remarkably increased.

He devoted most of his scientific career to biochemical research in the field of medicine, and was Director of the Evans Memorial for Clinical Research and Preventive Medicine of the Massachusetts Memorial Hospitals as well as professor of physiological chemistry in the Boston University School of Medicine. He was internationally known for his studies of internal glandular secretions.

Dr. Rowe had long been interested in the development of athletics at M.I.T. and had been a member of the Alumni Advisory Council on Athletics since 1911. He was also a member of the American Olympic Committee and a director of the Sportsmanship Brotherhood.

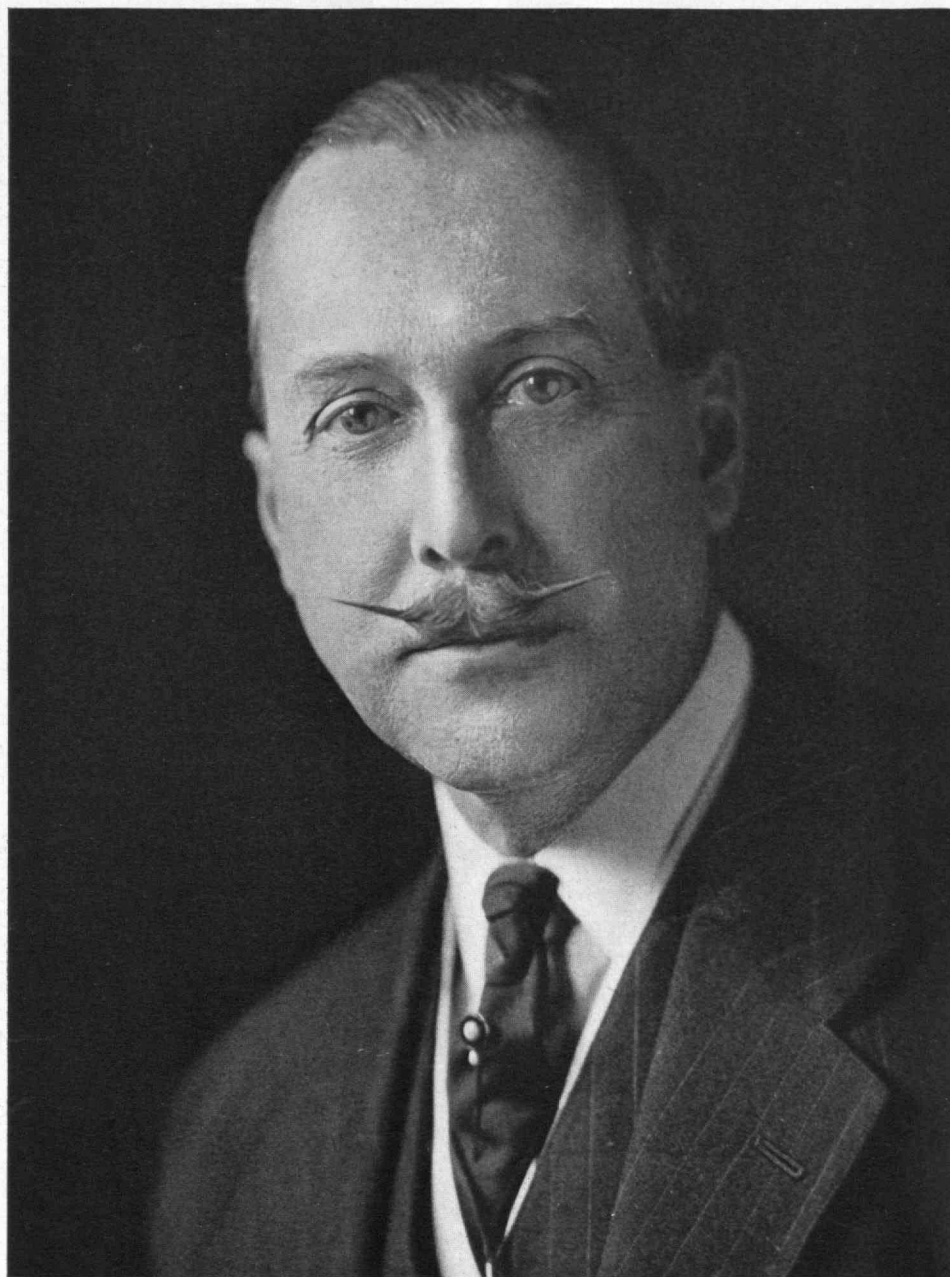
His far-reaching contributions to amateur sport are happily described in the following tribute which he himself wrote to another great Technology sportsman, the late Major Frank H. Briggs, '81:

"By precept and example he inculcated, developed, and exemplified those high ideals of true sportsmanship which are the sound basis of human relations; with far-seeing vision, he conceived and advocated those principles of conduct which today are developing and moulding the youth of this country."

His conception of the true spirit of amateur sportsmanship was likewise admirably illustrated in the lines inscribed above the gate which once stood at the entrance to Technology's athletic field — lines which Dr. Rowe frequently quoted:

"Not the quarry but the chase
Not the laurel but the race,
Not the hazard, but the play
Make me, Lord, enjoy alway!"

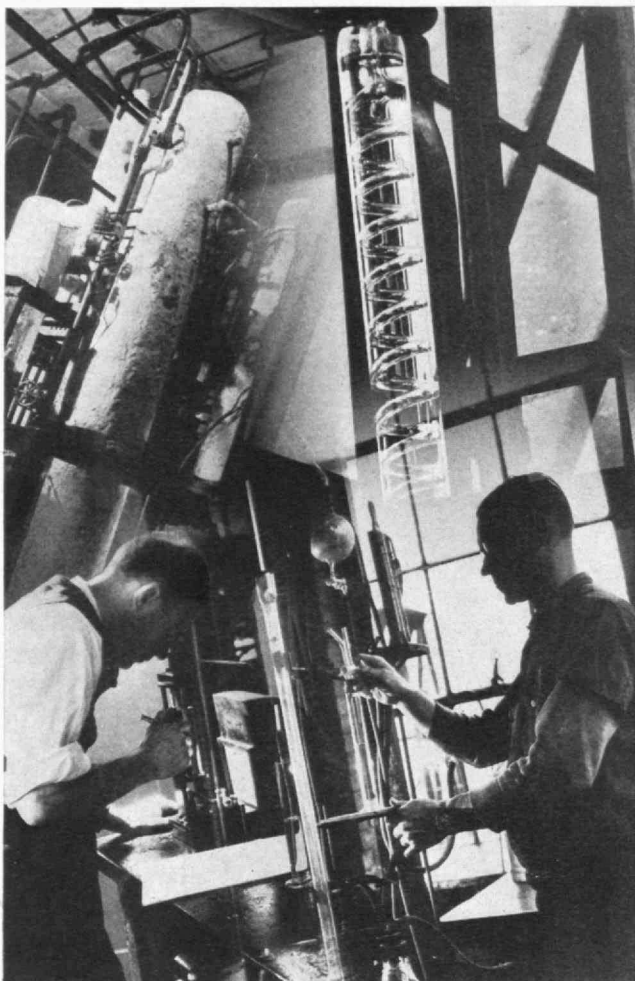
Dr. Rowe was born on July 31, 1879, the son of Arthur H. and Lucy H. Rowe of Gloucester, Mass. Following his graduation from the Institute in the Class of 1901, he spent a year in industrial work in Providence, followed by two years of research with the late W. O. Atwater at Wesleyan University, where he was awarded the degree of master of science in 1904. In the same year he was awarded the Swett fellowship by Technology and carried on advanced studies at the University of Göttingen, receiving his doctorate in philosophy in 1906. Upon his return to this country he became a lecturer at the Boston University School of Medicine and two years later was appointed professor of chemistry. From 1907 to 1914 he was also affiliated with the Harvard graduate school, where he engaged in advanced study and research with the late Nobel Laureate, Professor T. W. Richards.



ALLAN WINTER ROWE, '01

JULY 31, 1879 — DECEMBER 6, 1934

Polished gentleman, accomplished scholar in a difficult field of research, champion of clean amateur athletics, effective and devoted friend of the Massachusetts Institute of Technology. His brilliance gave color to every Institute gathering. His determined individualism in a standardized world lent courage to all who recognized the need for valiant independence of thought. He was cut off in his prime. Institute undergraduates will never have a more energetic and able supporter of all that is most worth while in college life. They have many friends, but Allan Winter Rowe will never be replaced. — Dean Vannevar Bush, '16.



M. W. Kellogg Co. and Process Management Co.

He had been a member of the staff of the Evans Memorial since its foundation in 1910, and since 1921 had been its director of research. He was a trustee of the Boston Psychopathic Hospital and this year accepted the same post at Norwich University.

Dr. Rowe was a fellow of the American Association for the Advancement of Science, the American Academy of Arts and Sciences, the American Physical Society, and Economics Engineering Foundation, and the Chemical Society (London). He was an honorary fellow of the Reale Società Italiana d' Igiene, Vice-President and trustee of the Memorial Foundation for Neuro-Endocrine Research, a Past-President of the Association for the Study of the Internal Secretions, and Honorary Secretary of the International Anaesthesia Society.

He was a member and councillor of the American Chemical Society, and also held membership in the American Electrochemical Society, the American Society of Biological Chemists, the American Physiological Society, the Society of Experimental Biology and Medicine, the Academy of Medicine, the Société Chimique de France, and the Société de Chimie Biologique. He was an honorary member of the Massachusetts Medical Society.

In addition to his other activities, Dr. Rowe for a time was President of the Boston School of Physical Education. He was a member of Theta Xi and Phi Beta Kappa fraternities, and belonged to the St. Botolph,

University, and Union Boat Clubs. Dr. Rowe was an exceptionally gifted speaker and writer and was the author of many distinguished scientific papers and various articles of wide cultural interest, many of which appeared in *The Review*.

In more ways than a contributor did he bring support and encouragement to this magazine. The editors relied on him constantly, found him always ready to help, were inspired by his abounding wit, remarkable conversational powers, and wide culture. We bear witness to his unique gifts, to the warmth, friendliness, and prodigious energy that made him indisputably one of the Institute's most distinguished sons. Technology will always be a finer institution because of what he contributed to it.

Storm in the Stratosphere

INTO the maw of a vast storm high over St. Louis recently went 35 sounding balloons, bearing sensitive instruments for recording atmospheric conditions in the Institute's second study of stratospheric weather. The balloons, larger than those used in a similar and most successful experiment last February, were expected to rise higher (one went to 65,000 feet), bring back to earth even more valuable data. Technology's meteorologists hoped to determine, among other things, whether violent changes occur in the stratosphere during periods of changing temperature and at what approximate levels the maximum cold occurs.

But partially inflated when they leave the ground, the balloons expand upon reaching the rarefied air of the stratosphere, eventually burst, and fall to earth. The instruments, with temperature, humidity, and atmospheric pressure automatically recorded, are saved from destruction by shock-absorbing frames. Each bears an identification label offering a reward for their safe return to Professor C. G. A. Rossby, Director of the Institute's Division of Meteorology. Of the 35 balloons, 24 have already been found and are being forwarded to M.I.T. Of 38 balloons released in the original flight last year, 36 were found and returned by residents of southern Illinois.

The time of the balloons' release was determined by weather forecasts made at the Institute and telegraphed to Lambert Field Airport in St. Louis, where Chris Harmantas, '25, research assistant in charge of the investigation, sent the bags aloft at intervals of two hours. The mid-continent location for the experiments was chosen in order that the instruments might be found on land. To carry out the study in New England, where the prevailing winds are from the west, probably would result in the loss of most of the balloons at sea. The information gathered in these observations in the upper air is adding effectively to meteorological knowledge and to the science of accurate weather forecasting.

Cosmopolis

WHEN the Institute recently came to call the roll of its foreign students, it found among them representatives of 33 nations outside the United States, its territories, and dependencies. A total of 149 young men

and women, or nearly six per cent of the entire student body, hold citizenship in countries in every part of the world.

Leading all other countries in number of students at the Institute is China, with a total of 31. Canada stands second with 29, while Great Britain ranks third with 13. There are nine students from Japan, seven from Cuba, six from India, and four each from Spain and Germany. Other nations represented are the Argentine Republic, Australia, Austria, Belgium, Brazil, Colombia, Czechoslovakia, Ecuador, Finland, France, Holland, Hungary, Iraq, Mexico, Newfoundland, Norway, Panama, Poland, Siam, South Africa, Switzerland, Soviet Russia, Syria, Turkey, and Venezuela.

Of the entire foreign group, 88 are undergraduates, while 61 are carrying on advanced studies in the Graduate School.

Dynamic Strength of Materials

A NEW laboratory in which the knowledge and experience of the machine designer, the metallurgist, and the physicist can be focused on the working properties of machine materials is in process of development in the Department of Mechanical Engineering under the direction of Professor Alfred V. deForest, '12, who joined the Faculty last autumn.

It is customary for the metallurgist to define his metal in terms of tensile strength, proportional limit, elongation, reduction of area and hardness — static properties derived from highly conventionalized forms of testing. On the basis of these figures, sometimes with the help of impact and fatigue values which are also the results of conventional procedure, the engineer designs his structure and draws his specifications.

Unfortunately, the working properties of machine parts are not measured by these figures. Moving machinery is subjected to dynamic stress conditions and the dynamic properties of full-size parts are insufficiently known to form the basis of rational design or of accurate specification. The designer, therefore, turns to whatever quantitative experience is available, and where knowledge fails, to opinion, prejudice, and the sales arguments of the various steel and alloy manufacturers. In order to increase our knowledge of this field, the Institute has established a laboratory for the study of the dynamic strength of materials.

It is not always realized that dynamic strength as differentiated from static strength is frequently a matter of the quality of a stressed surface. As a diamond scratch a few thousandths of an inch deep "cuts" a piece of plate glass, or a steel wedge splits a dry log, a crack of insignificant depth, and often totally invisible will lead to certain failure. Fortunately, a test method has been successfully applied which will locate such discontinuities. If a steel surface is magnetized in such a way as to prevent the formation of an external field and the surface is lightly dusted with finely divided magnetic particles, these particles will indicate a crack or discontinuity of the metallic structure even though the defect is of the order of a few tenths of a thousandth of an inch in depth. In hard materials such as are used in ball bearings, grinding cracks (Continued on page 144)

BENDING MOMENTS

WINTER cometh on and on, and with it the broken necks, arms, and ankles of the rapidly increasing horde of American skiers will begin to keep the bone doctors busy. Skiing, the Quidnuncs suggest, offers an important study for some otherwise unoccupied scientist.

Skiers have long been told in considerable detail the principles of turns and jumps, based on correct physics. Muscular coördination and the required shifting of weights and balances are described in every possible form. When it comes to ski waxes, however, the best writers become silent. The most they can say is what wax or waxes to use, but how to use them is entirely a matter of judgment and hunch. Here, they proclaim, is the mystery and hence the artistry of skiing.

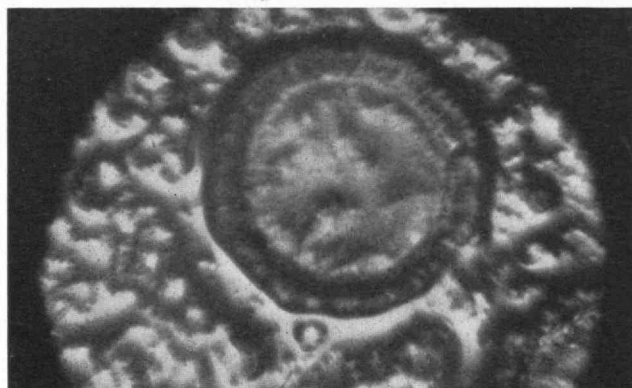
Wax, be it known, is applied to the bottom of skis to make them run faster or slower. There are myriad kinds devised to make climbing easier, to make skis run fast on slow snow or go slowly on fast snow. Their constitution is well known. In a pinch a climber can use pitch from a pine beside the trail to get up with, but woe betide him if he neglects to remove it before starting down.

Now this is all very well. The flaw comes in telling whether the snow in hand is corn or powder, whether the wetness of this morning which made the trail slow has under the sun by some ridiculous phenomenon of nature been transposed into a fast slickness. This need not remain so mysterious.

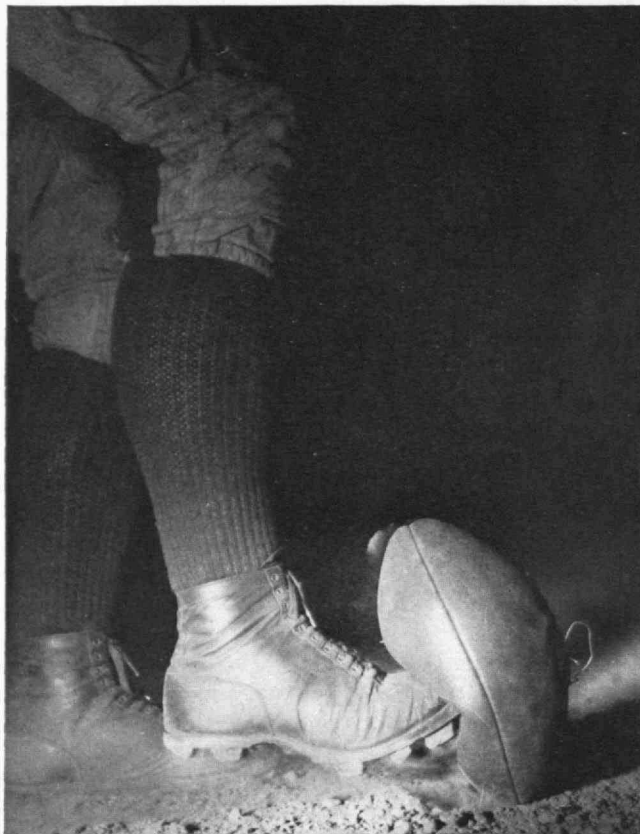
The amateur photographer of today has distance gauges and photoelectric meters and if he has any common sense at all, scarcely needs to make a mistake. It is time the scientist devised some sort of pocket instrument that the skier can apply to the snow so he will know what he is up against.

Unfortunately, there seems little promise of such event. The scientist, a mouse in his laboratory, becomes a hellion if he takes to the snow runners. By far the most dangerous man on the course is a whooping and bespectacled apparition who week days can be found behind a funnel watching drops of something fall at the rate of one a minute.

THE QUIDNUNCs



A "lunar crater" on the microscope slide. This photomicrograph (X125) is of a bit of sodium sulphate and chromium sulphate, which was allowed to dry on a glass slide. The crater-like object is the crusted rim of a tiny bubble formed during evaporation of the solution



Every football fan has seen a placement kick, but no one has known what actually happens in that fraction of a second when the booter's toe meets the pigskin. This high speed electrical flash photograph, taken at an exposure speed of 1/100,000 of a second by Professor Harold E. Edgerton, '27, of the Department of Electrical Engineering of the M.I.T., reveals for the first time what the eye has never seen. The kicker, Wesley E. Fesler, former all-American star at Ohio State University and now kicking and end coach at Harvard, used a ball inflated to the playing pressure of approximately 13 pounds to the square inch. Measurements show that the boot penetrated at least half the diameter of the ball

occasionally appear and are particularly dangerous. They reduce the fatigue strength of the finished part in a ratio of the order of five or ten to one, but at the same time they only reduce the static properties by an exceedingly small quantity. The general level of metallurgical knowledge is such that the normal difference in strength between one type of steel and another, or one method of heat treatment and another, has far less influence than the enormous variation due to such accidental defects at or close to the surface.

While surface cracks, whether inherent in the metal as in seams, or added at the final operation as by grinding, are very dangerous to the life of the part, there are other less known and less easily controlled variables. The chief of these is the condition of surface apart from actual discontinuities. A slight amount of decarburization due to mill operations and heat treatment is known to reduce the fatigue properties by a factor of two to four. Here again, no indication of this detrimental effect can be gathered from the static strength or the fatigue tests on sample specimens carefully prepared for the normal type of fatigue machine.

Yet another condition exists in all the materials of construction; namely, the amount and distribution of

the internal stresses due to varying manufacturing methods, including, of course, final heat treatments, although the dependence of these stresses on the type of steel and the type of heat treatment is a large factor in the final useful strength of the machine part. Magnetic test methods are indicated for the study of such conditions.

In many cases the useful life of a product is determined by the great effect of slight chemical attack in the form of corrosion in conjunction with cyclic stress conditions. This may occur without external evidence in the form of tarnish or rust. The presence or absence of salt water in contact with stainless steel can change the fatigue limits by a matter of 50% or more; and even more disturbing are the apparent indications that this damage so modifies the normal fatigue curve as to indicate that there is no stress at which the specimen is safe if the number of reversals of stress is sufficiently large. In other words, the fatigue strength under certain corrosive conditions appears to be zero and the useful life of the member must be calculated from the expected number of loads applied.

These many uncertainties exist in the behavior of materials under working loads. In very many cases the working stresses themselves are unknown, and must be determined before the main problem, that of rational design and properly conditioned material, can be attacked. It is well known that, if the frequency of loading approaches the natural resonant period of vibration, the resulting stresses are no longer a function of the load itself, but more nearly a question of the energy-absorbing capacity of the metal and its various restraints. Conditions of resonant vibration are, therefore, of the utmost importance in the design of much high-speed machinery, and methods of measurement and study of vibration stresses must be developed and applied.

The new laboratory will attack the problem of the working strength of full-size parts, bringing to bear the special points of view of the physicist, the metallurgist, and the designing and testing engineer. A great body of uncorrelated knowledge of the behavior of materials is scattered throughout the literature of these main fields, and a great amount of wisdom lies in the experience of practical men.

These investigations will serve to focus present knowledge, and add thereto the experimental evidence with which to sift the unknown factors in present practice.

Metals Working Laboratory

WHILE Professor deForest bridges the gap between metallurgy and machine design, Assistant Professor John H. Zimmerman, '23, is advancing the Department of Mechanical Engineering's work in metals processing; *i.e.*, welding, drop forging, forming, and casting operations.

The old pattern-making shop has been replaced by a very modern welding laboratory, probably the most complete in any educational institution. The growingly useful technique of spot and other types of welding, and the need for advanced research in this field, make this new laboratory highly significant.

The metals processing laboratory also includes the foundry which is being modernized by the addition of sensitive temperature devices and other facilities for the scientific control and study of casting. Stress is being laid on drop forging and on forming operations, and a new air hammer is to be available. As the comprehensive plan for the laboratory develops, every type of modern metals working equipment will be installed.

Ex Libris

THE valuable architectural library of the late Henry Forbes Bigelow, '88, distinguished Boston architect and for many years senior member of the firm of Bigelow and Wadsworth, has been presented to the School of Architecture of the Institute.

The collection includes more than 500 volumes, many of them of unusual worth, and constitutes a valuable addition to the Institute's resources for architectural study. Among them are a number of books dealing with other branches of the fine arts, as well as some noteworthy biographies of early craftsmen.

Mr. Bigelow received his professional training at Technology, and was long an active member of the Advisory Committee for the Department of Architecture.

Science for the Public

TOPICS to titillate the imagination of the amateur scientist and sportsman mark the current Society of Arts program of popular science lectures. In the opening address of the series on December 16, Professor George Owen, '94, of the Department of Naval Architecture discussed "Science and Sailing Yachts," illustrating his remarks with ship models and materials, slides and motion pictures of the America's Cup races. Following the lecture, the audience inspected the Pratt Museum.

"High Speed Motion Pictures" will be shown and described by Professor Harold E. Edgerton, '27, of the Electrical Engineering Department in the second of these experimental science talks on January 13.

Professor Gordon B. Wilkes, '11, of the Department of Mechanical Engineering will discuss on February 10 the production and control of heat and cold by radiation. Professor Robert J. Van de Graaff of the Department of Physics will conclude the series on March 10 with an address on the transmutation of atoms by means of high-voltage bombardment.

Training for Employment

LONG-RANGE methods of training students to find the type of employment in which their special aptitudes and training will make them most valuable to their employers, themselves, and to society from the point of view of greater public service were discussed by John M. Nalle, '20, Placement Officer of the Institute, at the annual meeting last month of the Association of University and College Business Officers of the Eastern States in Pinehurst, N. C.

Horace S. Ford, Treasurer of Technology, who is also Secretary-Treasurer of the association, and Bursar Delbert L. Rhind also attended the meeting.

Describing the work of Technology's Placement Bureau, Mr. Nalle said that its major purpose was to consider the problem of placing graduates in its broadest sense. "Success after graduation depends," he said, "not on immediately getting 'a job,' but in seeking opportunities which, in the light of individual aptitudes, may be considered in terms of a lifetime.

"The first positions men enter after graduation affect their careers enormously," he declared, "and we are convinced that it is more important for them to locate the correct type of work in their field of training and special aptitudes than to start on a job the first month after graduation. We think of it in terms of a lifetime rather than their first year out of college. Men who find the work for which they are best fitted are more valuable to their employers, to themselves, and to society. . ."

Placement training at M.I.T. includes an insight into the requirements and opportunities in the many branches of science and industry, analysis by each student of his special abilities, and an understanding of the basic principles of employment.

Discussing the employment situation, Mr. Nalle stated that in November, 1934, only 10.6% of students awarded advanced degrees at Technology last June were not employed, while 22.6% of the men awarded bachelors' degrees had not found positions.

Corporation Visiting Committee Reports

BELOW are condensations of two more Visiting Committee Reports recently presented to the Corporation of the Institute and published here as part of a series now appearing in The Review.

REPORT OF THE VISITING COMMITTEE OF THE DEPARTMENT OF BIOLOGY AND PUBLIC HEALTH *

MEETING jointly with the Head of the Department, Professor Samuel C. Prescott, '94, Dean of Science, and members of his staff, the Committee

* The Visiting Committee which made the above report consisted of: Maurice R. Scharff, '09, *Chairman*; Francis H. Williams, '73; Henry E. Worcester, '97; Allan W. Rowe, '01; Redfield Proctor, '02. Donald B. Armstrong, '13, and Ralph E. Tarbett, '05, were present as Advisory Members.

ALUMNI GET-TOGETHER

Walker Memorial, February 9

Alumni of the Boston area are invited to an informal dinner at Walker Memorial at 6:30 on Saturday, February 9. There will be a minimum of speaking and the activities of the undergraduates will be featured.

Tickets will be \$1.50. Last year 850 Alumni attended the mid-winter dinner; this year the committee in charge, of which Percy R. Ziegler, '00, is chairman, is anxious that as large and as representative a group will again be present. There will be an important discussion of organized Alumni groups in towns adjacent to Boston.

reviewed the activities and facilities of the Department "in considerable detail" and "were deeply impressed by the extent and variety of valuable research work being carried on . . . as well as by the devotion of the members of the staff to their teaching responsibilities and to the production of valuable contributions to technical and scientific literature."

The Committee "noted with concern the extent to which the Department was already making use of space not originally designed for either classroom or research work, even with the present demands being made upon it. They found clear indications that the demands . . . would be increased in the near future because of the growing requirements for graduates in public health and public health engineering for health services of counties and municipalities, and for work in food technology; because of the continuation of research work in the testing of industrial efficiency of employees as a further development of the work heretofore carried on in coöperation with the Western Electric Company; and because of the growth of interest of advanced students in other departments in research work in the fields of bio-chemistry and bio-physics. These tendencies are called to the attention of the Corporation with the request for sympathetic consideration of the prospective requirement by the Department of the enlargement of its staff and floor space to meet these growing demands."

In advising the Committee of the needs for additional space, Professor Prescott reiterated his hope that the construction of the proposed William Thompson Sedgwick Memorial Laboratories, a project necessarily being held in abeyance for the present, might eventually be accomplished. In this desire the Committee concurred. He also invited attention to the large number of papers, some 111 in a little more than six and a half years, contributed by members of the Departmental staff to the scientific press. Mention was made as well of three important teaching texts now in preparation. He also cited the increase in the number of graduate students, particularly in the public health field, and made mention that during the past four years 15 students had come from seven foreign countries.

To supply information for the discussion, Professor Prescott presented memoranda prepared by other members of the Departmental staff:

(1) That of Professor C. E. Turner, '17, emphasized the promising future field of usefulness for the public health engineer; the successful completion of the four-year program of research in industrial hygiene carried on in coöperation with the Western Electric Company; and the continuance of studies of methods of health training in the public schools. "The plan of training and instruction which we have developed in Malden is being put into operation by an increasing number of states and cities and is now being used with well over 3,000,000 children."

(2) That of Professor J. W. M. Bunker, outlining the biological research work of the Department which is of four types:

"A. Coöperative investigations in applied and in pure science, in the field of biology, utilizing as much as possible the methods of precise measurement developed in physics, chemistry, and electrical engineering.

"B. Coöperative work with the Boston Children's Hospital, contributing precise evaluations of vitaminic milk to a study of clinical rickets.

"C. Official bio-assays of the Certified Vitamin D Milk, for the Medical Milk Commissions of Boston, Providence, Springfield, and Worcester.

"D. Projects entirely within the field of biology and the personnel of this department only."

(3) That of Professor J. W. Williams which dealt with his research work in the field of pathogenic fungi.

(4) That of Professor B. E. Proctor, '23, outlining the research work in bacteriology and food technology being carried out under his direction including: a study of poi fermentation, the micro-biology of the upper air strata, an investigation of bacteriological and chemical changes in fish, preliminary work on the effect of oxidative changes in packed foods, particularly from the standpoint of rancidity.

(5) That of Dr. M. W. Jennison, '27, who is engaged in studies of some of the more fundamental aspects of bacterial physiology.

(6) That of Professor Charles H. Blake, '25, outlining his research work in the field of comparative zoölogy, especially on land isopods, ostracods, and New England fauna, as well as giving some attention to larval barnacles and marine cladocerans.

Owing to severe illness necessitating leave of absence, no report was given by Professor Murray P. Horwood, but it may be stated that some specific studies on evaluation of new methods for bacteriological examination of water were being carried out in accordance with plans originally made by him.

Chairman Maurice R. Scharff, '09, reported that Dr. Allan W. Rowe, '01, "had agreed to undertake for the Committee a long-term study of the public health education activities of the Department and of their relation to the activities of other educational institutions and public and philanthropic institutions and called upon Dr. Rowe for a progress report. Dr. Rowe stated that the work on his survey was well under way, although he estimated that one to two years would be required for its completion. He stated that he had received generous offers of coöperation from many friends of the Institute occupying important positions on the fields of sanitary science and public health and through this coöperation expected to collect complete data on public health education all over the world, but especially in the United States, which would be submitted later to the Committee. Dr. Rowe also emphasized the desirability of developing wider clinical connections for students of public health at the Institute, to which he expects to give special attention in later reports."

REPORT OF THE VISITING COMMITTEE OF THE DEPARTMENT OF ELECTRICAL ENGINEERING *

IN a conference with members of the Institute's Administration and the Departmental Faculty, five subjects were considered by the Committee: (1) the

* The members of the Committee which made the above report were: Alfred I. Loomis, *Chairman*; Alexander Macomber, '07, Maurice R. Scharff, '09, W. Cameron Forbes, Charles Neave, '90. The Advisory Committee members who met with the Visiting Committee included: Henry G. Bradlee, '91, Frank B. Jewett, '03, and Henry A. Wise Wood.

question of enrollment and space allotted to the Department, (2) the effect of a policy of limiting student numbers, (3) coöperation with the Department of English and History, (4) coöperation with science departments, and (5) a proposal for improving the social aspects of engineering education and of the engineering profession.

With respect to the first two subjects, the Committee "expressed the opinion that any policy designed to place a limit on the number of selected electrical-engineering students to be accepted by the Institute, is of far-reaching significance from the standpoint of the Institute and also from the standpoint of the industries for which the Institute is an important source of educated personnel. *It appears to be wisdom to maintain in this country one or more institutions of the highest order in which formal limitations of number are not imposed, provided a high order of scholarship is insisted on.* This situation will best serve the needs of industry for young men of high caliber. The present leading position of the Institute makes it seem desirable to the Committee that the M.I.T. shall remain an institution where no arbitrary limit of numbers is imposed, provided the funds for carrying on in this manner are available. The space needed by the Department is intimately related to the numbers of students following the advanced electrical-engineering studies. *It is understood by the Committee that the question of space required for the Institute as a whole is not pressing at the present time on account of the effect of the depression on the total student numbers.* A situation may sometime be reached, however, where additional construction becomes necessary; that is, where a small increase in numbers may mean a large capital expenditure. The question of staff, on the other hand, can be accounted for as need arises. To meet the existing situation, the Committee urges the desirability of assigning to the Department of Electrical Engineering such additional, conveniently located laboratory space as can be found for it during the ensuing year.

"Regarding the question of coöperation with the other departments, the Committee commends the coöperation which is being carried on between these departments and the Department of Electrical Engineering. The appropriate study of English by engineering students is recognized to be of primary importance. The present coöperation between the English Department and the Electrical Engineering Department appears satisfactory. The introduction of English courses of suitable character in the senior year in addition to the formal courses of the freshman and sophomore years has been of definite benefit to the students, and it appears that the students of electrical engineering have come to realize this, and to respond to the instruction. Mr. Henry A. Wise Wood has made certain suggestions for enlarging the language material used in senior instruction. The Committee suggests, however, that more might be done throughout the Institute to encourage the students to develop the art of oral and written expression in their own organizations and outside of formal exercises.

"The Committee approves the coöperation which exists between the Department of Electrical Engineering and the science departments, such as the Depart-



Making animated motion pictures for M.I.T.'s Division of Visual Education. Left: Professor L. F. Woodruff, '18, checking card cut-outs for depicting the progress of an electrical wave. Right: F. H. Conant operating the animation camera

ment of Mathematics and Physics and, to a lesser extent, the Department of Chemistry and of Biology and Public Health. Such relations of coöperation are highly desirable.

"The Committee also approves the policy of the Department of Electrical Engineering in making investigation (research) a part of the educational process exerted on junior and senior students, in addition to approving a high order of research activities applied to leading graduate students.

"The fifth item of the agenda, the proposal for improving the social aspects of engineering education and of the engineering profession, impressed the Committee as a major project of the agenda. A fuller recognition in engineering education of the social aspects of the engineering profession is a matter of vital importance. Engineering is the application of the forces of nature to useful purposes, and this makes it of great social significance. It is logical, therefore, to expect the engineering profession increasingly to train itself for its social responsibilities.

"As a first step in this direction, the Committee recommends that the plan which has been laid before it be tried in the Department of Electrical Engineering, and the effort to raise money needed for the purpose is approved subject to the approval of the appropriate Institute authorities. It is to be understood that the plan should limit itself to those aspects where the method of analysis used in engineering science is actually applicable. The plan proposes that staff members who are engineers, but who possess a mastery in the economic and sociological phases of engineering, be added to the staff of the Electrical Engineering Department. These shall have the duty of coöperating with the Department of Economics and Social Sciences for the purpose of developing the applied aspects of that subject through research and teaching in a manner which corresponds to the coöperation now characterizing the relations of the Department of Electrical Engineering with the Departments of Mathematics, Physics, and Biology for developing through research and teaching the applied aspects of those subjects. The Electrical Engineering Department is in an excellent position to serve as a proving ground, since it has a start in the

proposed direction as far as the technical aspects of electrical engineering are concerned, but it lacks the staff and facilities requisite for an intensive cultivation of the economic and social phase of electrical engineering. The large number of graduate students in this Department and its well-established Honors Groups of senior and junior students, with seminars, make the Department particularly available for this undertaking.

"There are two ways in which this project can be entered upon: (1) by attracting some instructor now on the Electrical Engineering staff to become interested in the proposition and to establish lectures on and research relating to the economic aspects, or (2) by adding especially-qualified men to the staff for that particular purpose.

"The former method would be the less expensive one as an experiment, but it would lead to slower progress. Also, if funds are to be secured outside the Institute, it may be more difficult to interest the proper agency in such a small-scale venture. The Committee considers it desirable that the project be started in accordance with the second method and on a sufficiently broad basis from the beginning, so that there may be a reasonable expectancy of establishing the success of the plan within a reasonable trial period, such as a five-year period.

"A personnel consisting of a professor and an assistant professor and perhaps two research assistants, with some annual funds for research, would meet the situation. The success of the plan would hinge to a large extent on the man or men selected. In connection with this plan, some aid should be given to the Department of Economics and Social Sciences, in order that the coöperation between the two departments can be fully worked out without burden on the existing staff of the Department of Economics and Social Sciences.

"The Committee recognizes that a venture of this sort might encroach upon fields which logically should be developed by authorities on pure economic theory, sociology, political science, and so on. This must be definitely guarded against. Such a diversion would be contrary to the purpose of the plan, would undermine the success of it with the engineering departments, and would be likely to render the results less authoritative and less significant. Hence, in establishing the plan, it would be desirable for its field of endeavor to be clearly defined. It is the opinion of the Committee that the work should primarily be directed toward an examination of the premises and assumptions on which are based the economic theory that relates to industry, referring to industry in the broad sense and including therein the public utilities. Science and engineering have largely created sociological conditions as they are today. It is logical that engineers who recognize the realities which the technical advances have brought about should be established as the persons qualified to examine the influence of these conditions on the above-mentioned premises and assumptions. But the establishment of pure economic theory should be assumed to be within the scope of the economists.

"An important benefit which would accrue from the plan is the stimulation of interest of engineering students in the social aspects of electrical engineering so that such students will continue (*Concluded on page 158*)

MAIL RETURNS

Moonlight and Fishes

DEAR REVIEW:

On page 89 of your December issue you have written about the effect of moonlight on the decay of fish. I have heard of that before, but I have been unable to find any proof for the statement.

I thought you might be interested in the explanation I heard, which came from a fairly reliable source. This person stated that the bacteria responsible for the spoilage of fish grew and multiplied more rapidly in the presence of polarized light. . . .

MARK A. BARMORE

312 Garfield
Fort Collins, Colo.

Can any reader supply further evidence to supplement that presented in the December Review on the effects of polarized moonlight? — THE EDITOR.

Where Did Nim Originate?

DEAR REVIEW:

I was much interested in the brief account of "Nim" on page 67 of the November Review. I first heard of it through a relative who picked it up while on a geological expedition into Colombia. He insisted that the game was played with bones by natives who considered the winner to be the one who forced his opponent to take the last bone. Others have told me that the game is played in England. I wonder where it originated?

R. E. HAYLETT, '15

Long Beach, Calif.

Liquor Advertising

(The Review regrets that it cannot publish all of the score or more of letters received in response to its query on liquor advertising. The following comments, however, are typical. See page 121.)

DEAR REVIEW:

"... A scientific magazine of true ideals and with a proper sense of dignity must maintain the attitude you have outlined. . . ."

JUDSON C. DICKERMAN, '95

Federal Trade Commission
Washington, D. C.

DEAR REVIEW:

May I congratulate you on the absence of liquor advertising in The Review. I do not believe in prohibition, neither do I believe in inebriation, and I am always proud to keep The Review on my desk for days, and show it to men of all classes who come into my office. Everyone comments on the high-class (not high-hat) articles and very frequently on the high-class advertising.

WILLIAM J. LUMBERT, '06

North Scituate, Mass.

DEAR REVIEW:

Referring to the editorial, bottom of page 81, writer wishes to say that he thoroughly approves of your refusing wine, beer, and spirit advertising in The Technology Review. He also wishes to congratulate you for the splendid matter recently contained therein.

A. H. PUGH, '97

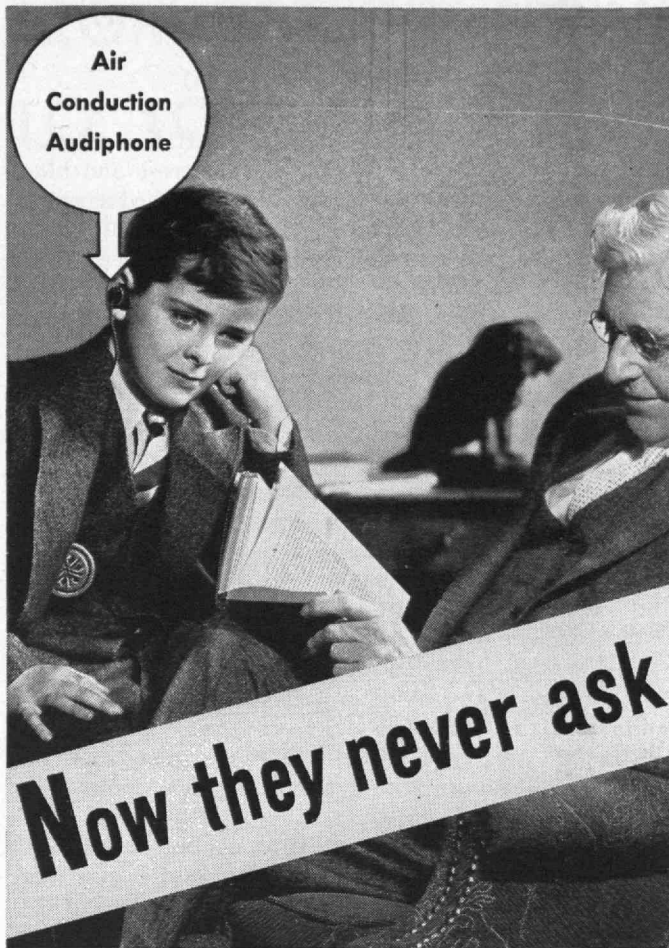
Cincinnati, Ohio.

DEAR REVIEW:

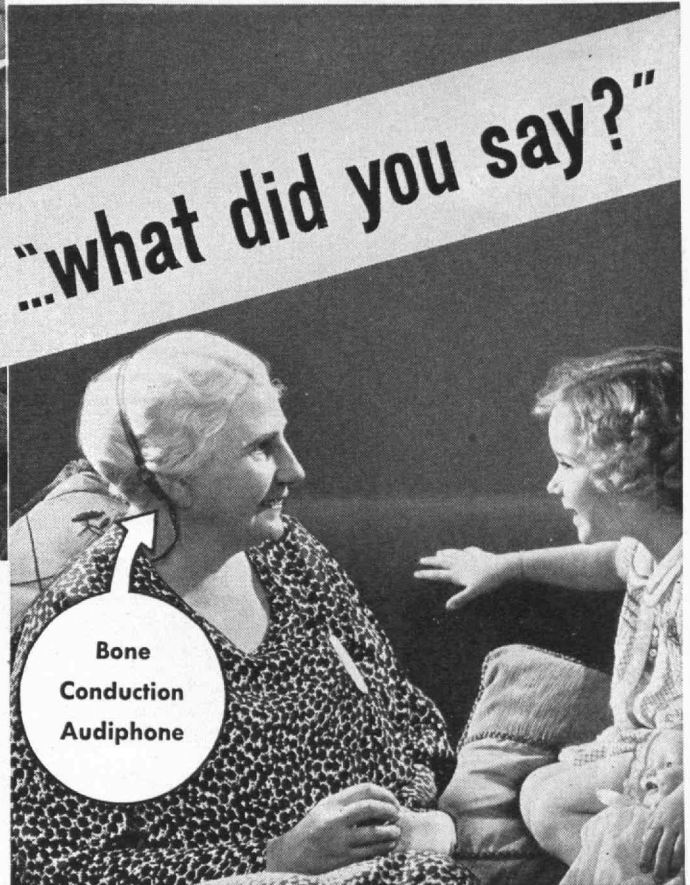
In response to your query on page 81, may I say that I heartily endorse your policy of exclusion. Liquor advertisements seem wholly out of place in a journal of the high professional and scientific character of The Review.

MARION TALBOT, '88

Chicago, Ill.



Now they never ask "what did you say?"



No more of those tedious interruptions.
The hard of hearing find it easy to hear
with the help of the Western Electric

Audiphone—available in both the air conduction and bone conduction types.

This little device is such a mighty aid because it was designed by Bell telephone engineers—the world's leading experts in sound transmission, and is produced by Western Electric—makers of Bell telephones.

Try the Audiphone. Notice how *natural* are the sounds that come to you.

Western Electric
• HEARING AID •

Distributors in Canada: Northern Electric Co., Ltd.



Consult telephone directory for address of Graybar branch in your city, or mail coupon to Graybar Electric Co., Graybar Building, New York, N. Y., for full information on Western Electric Audiphone and name of nearest dealer. AL-17

Name.....
Address.....
City..... State.....

PHILATELIC ENGINEERING

(Continued from page 138)

No. 22
A Production
Leader for 1935

... an economical investment for both short and long run production jobs.

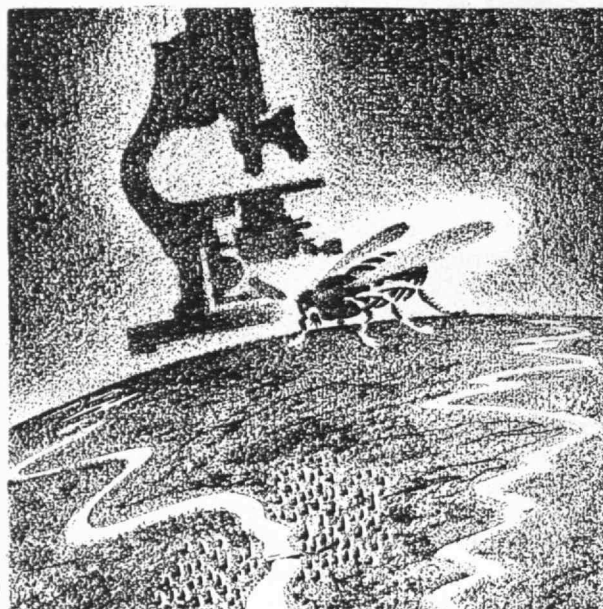
Investigate its advantages!

B.S.

Brown & Sharpe Mfg. Co. Providence R. I.



BROWN & SHARPE
NO. 22 PLAIN MILLING MACHINE



THREE CENTURIES AGO Anthony Van Leeuwenhoek made the first microscope. For over two centuries microscopes were priceless instruments obtainable by only a few. Today Bausch & Lomb manufactures microscopes of unsurpassed quality for every purpose at a price that makes them readily available to Science, Industry and Education. Bausch & Lomb Optical Co., 635 St. Paul Street, Rochester, New York. » »

Bausch & Lomb

stamps, and the only ones besides the Italian number, which preceded the U. S. 24¢ carmine rose and blue, came among the last official acts of the doomed Austrian Empire. Three denominations of its regular 1916 issue were surcharged "Flugpost" for the service operated by military aviators between Vienna and Kieff (Ukraine) via Cracow and Lemberg. The first flight took place March 31, 1918, and the service was discontinued the following September. These Austrian stamps also are valued by collectors incommensurately with their historic interest, except for the imperforate specimens prepared for members of the Imperial Court.

Two surcharged Hungarian stamps, used 19 days in July, 1918, on the military air line between Budapest and Vienna, and the first official (and specially designed by J. A. Mather) German air post stamps of November 10, 1929, are also quite common even today. But the unused single copies of the surcharged Colombian stamp used in July, 1919, on a single flight between Barranquilla and Port Colombia and the 3¢ Newfoundland (Trail of the Caribou issue) surcharged "First Trans-Atlantic Air Post, April, 1919"—known as the "Hawker" stamp, and of which only 200 copies were prepared by J. A. Robinson, then postmaster of Newfoundland—have commanded at auctions as high as \$600 and \$1,500, respectively. Tunis and Switzerland each surcharged a regular stamp for air post use in 1919, that of Tunis being on the 35-c. denomination of the 1906 issue showing the ruins of Hadrian's Aqueduct. In the spring of 1920 Estonia issued a specially-printed triangular-shaped stamp for use on a newly established line between Reval and Helsingfors, and Spain surcharged four principally for air mail to Morocco; in mid-summer came the four of the Belgian Congo, printed by the well-known British firm of Bradbury, Wilkinson and Company; and in the autumn Sweden, Danzig, Czechoslovakia, and Syria surcharged previously issued ordinary issues "Luftpost," "Poste par Avion" or with line-drawings of planes.

The year 1921, besides surcharging on the part of Uruguay and Memel, found Holland, Lithuania, and China added to the countries having "air mails" designed for that particular usage, those of China, as is also true of all her later emissions, picturing an airplane over the Great Wall. Since 1921 a sufficient number of stamp-issuing entities have been added to the above to bring the present total to nearly 90.

Our own air post stamp designs since the original 1918 issue have included: the *Spirit of St. Louis* 10¢ dark-blue of 1927; the 5¢ carmine and blue of 1928, showing a beacon on Sherman Hill summit in Wyoming; and three of 1930 for the *Graf Zeppelin*.

The latest foreign number at this writing is apparently the 2 fr. 25c. violet "poste p. c. Aérienne" with which France has marked the 25th anniversary of Bleriot's flight across the English Channel, which adds another name to the list of flyers and their planes so honored. This list, headed by Lindbergh, includes Kingsford-Smith, Santos Dumont, the Wrights, Emilio Carranza, DePinedo, Balbo, and even da Vinci, as well as the anonymous pilots of the Dornier DO-X. (Concluded on page 152)

FROM TEETHING RING TO TOMBSTONE~

Norton Abrasives

Ripley would say, "Believe it or not," but—

They finish the teething ring for the first bite—

And they grind and polish the parts of the milking machine, cream separator and bottling machinery—that the infant's food may be clean and pure.

Then all through life, each minute of life, man uses things produced with the help of Norton Abrasives. And finally his last resting place is marked with a slab of granite, shaped, finished, decorated and inscribed by abrasives.

It's an age of speed. Grinding made possible automobile travel at a super speed of 272 miles an hour, and airplane speed of 437 miles per hour. Such speed can result only from accuracy—and accuracy with mass production is obtained by modern grinding methods.

In the production of the average automobile there are 200 or more operations of grinding, polishing or lapping—Norton Abrasives make easier your transportation through life.

The Norton Grinding Wheel sharpens the tools that cut away mountains and lay the foundations of cities.

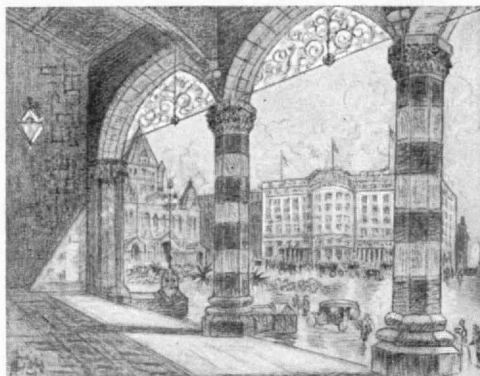
Made as thin as .006" it slots the iridium points of fountain pens, and a massive ten-ton stone converts logs of the forest into wood pulp which becomes paper—your newspaper.

Thousands of tales can be told about the odd uses of Norton Abrasives—but here's enough to reflect on as you smoke your pipe shaped by grinding, or puff a cigarette cut to length at the rate of a thousand a minute by knives kept sharp by Norton Grinding Wheels.

NORTON COMPANY, WORCESTER, MASS.

Behr-Manning Corp. and Norton Pike Co. Troy, New York, are divisions of Norton Company.

Groups of Norton Abrasive products are: Grinding Wheels, Sharpening Stones and Rubbing Bricks, Abrasive Papers, Pulpstones, Polishing Abrasives, Refractories and Laboratory Ware, Lapping Compounds, Non-slip Tiles and Treads. Norton Grinding Machines are built for many types of precision grinding, tool and cutter grinding, snagging and lapping.



The Copley-Plaza in Copley Square, Boston, as seen from the cloister of the new Old South Church. The imposing towers of Trinity Church are visible on the left.

Your Boston Address

— as famous as any in the world

WHEN business or friendship calls you to Boston, make the Copley-PLAZA your address. ■ Situated in historic Copley Square, facing its lovely gardens, and flanked by the world-renowned Trinity Church and the equally famous Boston Public Library, the Copley-PLAZA provides a hotel setting as distinguished as any in the world. ■ There is quiet and beauty here, a sense of security and well-being — a certain indescribable linking with New England's rarest traditions. ■ One doesn't "stop" at the Copley-PLAZA in Boston — one lives there.

The Copley-PLAZA, Boston

ARTHUR L. RACE, Managing Director

Technology Alumni . . .

JOIN THE MARCH TO WALKER MEMORIAL

THE number of alumni functions, undergraduate dances and dinners held in Walker Memorial has increased from 185 in 1927-1928 to 609 in 1933-34, or 228 per cent; number of guests attending from 12,832 to 45,113.

Your class smoker or dinner will receive the same courteous reception which has resulted in this phenomenal growth of Walker Memorial as a social center for all Technology men.

MENUS SUBMITTED ON REQUEST

Address A. W. BRIDGES

WALKER MEMORIAL DINING SERVICE

M. I. T.

Cambridge, Massachusetts

PHILATELIC ENGINEERING

(Concluded from page 150)

The most universally recognized air craft on postal paper has been the *Graf Zeppelin*. It has been pictured by Greece over the Acropolis, with Pegasus by Cyrenaica, over the Forum by Italy, over the Alps by Liechtenstein, over the North Pole by Russia, over ocean and between Continents by U. S., over pampas by Paraguay, and over the world by Germany!

INTO THE DEPTHS OF TIME

(Concluded from page 139)

The earth and its brother planets were pulled out of the sun by a passing star about five thousand million years ago. Those years are only a short strip of time extending backward from the present. We have needed five great sciences and much patient work to learn the story of that five billion year strip in the epic of eternity. It's a promising bit of knowledge; let's hope that it will grow; for the more we know about the past, the more confidently we may predict the future. Perhaps another star may pass our solar system near enough to pull the earth apart sometime far in the future. But there's no danger in sight for millions of years to come.

The future promises more marvellous revelations of science, whose light will show us a larger picture of our starry universe, and a longer vista into the depths of time — boundless into the past, and into the future without end.

PUT SCIENCE TO WORK!

(Continued from page 135)

we take steps to utilize our resources more intelligently and effectively, and this means scientific research on an increasing scale.

What are some specific things that Science can do, if put to work? I can give here only a few suggestive examples, as follows:

Agricultural research in the past has led to greater yields of improved farm products. What we *now* need is to discover new uses for these products, uses which will create new social values or partially replace the consumption of our exhaustible natural resources. Silk from wood, rubber from weeds, and motor fuel (alcohol mixed with gasoline) from corn are actual examples of what can be done. Experience justifies reasonable hope that a large fund wisely expended on research along this line will contribute toward a positive and permanent solution of the problem of agricultural overproduction; a far better ultimate solution than the present emergency expedient of huge year-by-year expenditures to pay farmers to reduce their production in order that the rest of us, who pay that bill, will also have to pay more for our food! The program I advocate has been vigorously urged by the Chemical Foundation. (Continued on page 154)

ESTABLISHED 1818

Brooks Brothers,

CLOTHING,

Gentlemen's Furnishing Goods,

MADISON AVENUE COR. FORTY-FOURTH STREET
NEW YORK

Evening Clothes

Evening clothes are so highly standardized in general type of materials that details apparently trivial become extremely important. There is, for instance, a vast difference in the way black vicunas cut, tailor and wear . . . we import a special grade from England. There is, in our opinion, a similar distinction between all-silk satins such as we employ, and synthetic substitutes. And finally, the fact that we make the clothes in our own workrooms insures certain advantages of Brooks Brothers' workmanship . . . as well as exclusive styles in the best of simple good taste.

BRANCHES

NEW YORK: ONE WALL STREET
BOSTON: NEWBURY COR. BERKELEY STREET



© BROOKS BROTHERS

INFORMATION ON M. I. T.

THE TECHNOLOGY REVIEW BUREAU exists to supply authoritative information to anyone interested in details regarding the Massachusetts Institute of Technology. It serves as a clearing house for inquiry and aims to further the spread of exact information regarding entrance requirements, outline of courses, subjects of instruction and other information which may be of aid to the students considering undergraduate or graduate study at the Institute.

The Institute publishes a variety of bulletins, as well as a catalogue of general information essential to the entering student. The Technology Review Bureau will be glad to send, gratis and post free upon request, one or more copies of any publication listed below, or to forward any special inquiry to the proper authority.

Ask for the following pamphlets by their descriptive numbers

- | | | | | |
|--|---|---|--|---|
| 1: For general information, admission requirements, subjects of instruction, ask for Bulletin 1. | 2: For announcement of courses offered in Summer Session, ask for Bulletin 2. | 3: For information on courses in Architecture, both Undergraduate and Graduate, ask for Bulletin 3. | 4: For information on Graduate Study in Science and Engineering, ask for Bulletin 4. | 5: For a popular presentation of Educational Opportunities offered at M.I.T., ask for Bulletin 5. |
|--|---|---|--|---|

All inquiries sent to the address below will receive prompt attention

THE TECHNOLOGY REVIEW BUREAU

ROOM 11-203, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

Everything in

**MECHANICAL
RUBBER
GOODS**

Industrial and Automotive Brake Lining
and Clutch Facings—Rubber Belting
—Hose—Molded Goods—Packing—
Rubber Rolls and Abrasive Wheels.

THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES AND FACTORIES, PASSAIC, NEW JERSEY

"Stets"

Send for new bulletin "Stets Water Level Route." It tells why "a straight line is the shortest distance between two points" in Water Level Regulation, as in Geometry.

MENTION THIS PUBLICATION

"That's All"

STETS COMPANY ■ BOSTON

THE RUMFORD PRESS

Concord, New Hampshire

1 1 1

*Makers of Magazines and Books
of Distinction*

Donald G. Robbins, '07 William H. Coburn, '11 William F. Dean, '17

William H. Coburn & Co.

INVESTMENT COUNSEL

68 Devonshire St.

Boston, Mass.

PUT SCIENCE TO WORK!

(Continued from page 152)

Complete electrification of the country, including farm, home, and factory, is a great goal, recognized by several existing governmental agencies. In order to reach this goal it is important to develop the electrical devices which may be inherently capable of transporting and distributing electrical power more cheaply and to find new ways in which electricity may advantageously be used. Such things are now on the horizon: it is certainly no less important to develop them than to experiment with public utility organization and control, since without them no plan of organization can achieve the desired result.

One of the greatest activities of the country is the disposal of refuse and sewage. Where these can no longer be dumped on a vacant lot or run into a river, they become highly technical problems. Hundreds of millions of dollars, as well as health and comfort are involved. Because less immediately pressing, this problem has received less attention than the simpler problem of water supply.

New housing is being urged as a means of providing employment in the building trades and heavy industries. Schemes of financing and of organization do not seem to bring about the desired activity in this field. Why not? Principally because the building art has not developed technically to the stage of producing a satisfactory house at a sufficiently low cost. What is basically needed is research on building materials, designs, and methods of fabrication.

The foregoing examples deal with large objectives. To them can be added innumerable details. The engineering art is full of unsolved problems and undeveloped methods whose solution would add to human safety and satisfaction. While geographical frontiers have shrunk, the boundaries of science are now wider than ever before, with more areas for exploration. Many discoveries in these areas will be useful; all discoveries add to man's interest in living.

From this discussion it will be evident that the objective will not be achieved by a few small appropriations to support a little research activity in some of the government bureaus; there is required a powerful, sustained effort to put science to work with the power of a national program. There is no implication, of course, that efforts should *not* be continued along the other lines that need attention, such as employee-employer relations, employee security, unfair business practices, stability of banks and credit, stimulation of business, and so on. It is also realized that desperate destitution and distress must be taken care of. The argument is simply that science also has an important and permanent contribution to make in this program, and thus far it has not been called upon. Instead of scientists and engineers hunting for jobs, we should see the jobs hunting for men to handle them, for it is these jobs that epitomize our opportunities for progress.

The foregoing considerations apply equally to the emergency policy of the government and to its permanent policy. An outline of what may advantageously be done along these lines follows: (Continued on page 156)

DEL CAMPO

in the ROOSEVELT GRILL



This new sensation of screen and air is conducting and singing at the new Roosevelt Grill. In addition, an intimate floor show and other unique divertissement.



Dinner Dancing at 7:00 and
Supper Dancing from 10:30 on.

NO COVER CHARGE AT ANY TIME

**The
ROOSEVELT**

Bernam G. Hines, Manager

Madison Ave. and 45 St., NEW YORK

A UNITED HOTEL

PUT SCIENCE TO WORK!

(Continued from page 154)

(1) An emergency program in science and engineering may well be attached to the Public Works program, since so much work in these fields can be related directly to the improvement of public works, and since modern Industry as well as the Law recognizes research and development as a proper charge against cost of production. It is recognized as an insurance, an investment, and a public benefit.

The amount of unemployment relief per dollar thus expended will also compare favorably with that resulting from expenditure in construction. I doubt very much whether the average hourly wage of the scientists and technically trained men of the country (excluding those in administrative positions) exceeds much, if at all, that of other skilled labor. Certainly this average for instructors and assistant professors in our universities falls below the union hourly wage in the building trades. Furthermore, all scientific work requires construction and purchase of equipment and generally unskilled assistance in some capacity. Thus, as a means of giving employment and of putting money into circulation, a program of scientific research is not at a disadvantage. Any such program would probably require legislative authorization and would certainly require an appropriation of several millions of dollars to be significant.

(2) A proper permanent policy in respect to science should embrace both governmental and non-governmental scientific agencies, in order to achieve the optimum results. Certain work of more immediate interest to important national groups is most properly the concern of governmental bureaus, such as the Geographical Survey, the Bureau of Standards, or the Weather Bureau. Other work of a more pioneering nature, or of a type susceptible of a more individualistic attack, is more properly within the scope of the university laboratories. In any case, experience shows that genius cannot be corralled within the confines of any one agency, and that there is no way of foretelling where the next big idea will be born.

The best development of science, therefore, calls for a bilateral plan whereby, on the one side, those essential continuing scientific services of the government may be properly guided and financed, and whereby, on the other side, the big ideas may be promptly recognized, wherever they arise, and their development be furthered by whatever financial support and coöperation is required. This latter type of governmental support of

science, if put into effect, would be a new departure for our government, though in line with recent policy in foreign countries. If it were put into effect wisely, I believe that it would yield returns of permanent value to the country exceeding those from almost any other comparable federal expenditure.

How could such a plan be administered efficiently? Certainly not simply by voting funds and ordering, "Let there be research!" Certainly also not by allocating funds at random to every university or land-grant college: this would be like trying to shoot duck by firing volleys blindfolded. What is wanted is well-directed fire at the targets; *i.e.*, at the "big ideas." A technique for locating these targets and directing the fire has been developed in recent years by organized groups of scientists and engineers, such as the National Research Council and the Engineering Foundation, with financial ammunition supplied largely by the great altruistic foundations.

The best, and probably the only, method of efficiently administering public funds for scientific research, is through a committee of eminent and representative scientists, who are competent to recognize the big ideas, who know the capabilities of personnel and laboratories in their fields and who possess the confidence of their colleagues. Such men, glad to serve without remuneration, are already trained, and the method has already been proved successful, through the various "Grants-in-Aid" committees alluded to above.

With the foregoing explanation, I therefore propose a National Program for Putting Science to Work, in four aspects:

(1) From emergency appropriations for Public Works, allocate half of one per cent of these appropriations for scientific and engineering research looking toward better public works for the future.

(2) Appropriate annually the sum of \$5,000,000 for support of important scientific and engineering research outside of governmental bureaus.

(3) Maintain the staffs and appropriations of the scientific bureaus of the government on a scale adequate for the performance of their essential services with necessary precision and perfection. (Concluded on page 158)

MORNING FACE IN THE BERKSHIRES

A small boarding school for boys and girls from four to fourteen. Prepares for leading secondary schools. Under-standing faculty. Intimate home life.

For information address

Mrs. Eleanor Runkle Crane, Director, Richmond, Mass.

GIRLS' SCHOOLS and JUNIOR COLLEGES

BRADFORD JUNIOR COLLEGE

Founded as Bradford Academy in 1803. Near Boston. Two-Year Liberal Arts College. Accredited for Advanced Work. Specialization in Art, Music, Dramatics, Home Economics. Superior Faculty. Modern Courses and Equipment. 40 acres. Indoor Swimming Pool; Riding, Golf.

KATHARINE M. DENWORTH, PH.D., Box 15, Bradford, Mass.

CHOATE SCHOOL

A Country School in a Model Town near Boston.

For girls: Boarding 11 to 19; Day 5 to 19 years.

College Preparatory and General Courses.

Outdoor life.

Principal, AUGUSTA CHOATE, Vassar,

1600 Beacon Street, Brookline, Mass.

PREPARATORY SCHOOLS FOR BOYS

BERKELEY PREPARATORY SCHOOL

Established 1907

Special Preparation for M. I. T.

Harry F. Cade, Jr., '28, *Principal*

1089 Boylston Street, Boston

Tel. Commonwealth 9262

CHAUNCY HALL SCHOOL

Founded 1828. The School that confines itself exclusively to the preparation of students for the Massachusetts Institute of Technology.

FRANKLIN T. KURT, *Principal*, 553 Boylston Street, Boston, Mass.

CLARK SCHOOL

Prepares for and certifies to all colleges.

Classes average six students.

Instructors, men of experience.

Also offers Junior College Business Course.

Address: FRANK V. MORGAN, Ph.D., Hanover, N. H.

DWIGHT SCHOOL

72 Park Avenue, New York City

College and Regents' Preparation. 51st Year

ERNEST GREENWOOD, *Headmaster*

HEBRON ACADEMY

Thorough college preparation for boys at costs surprisingly low due to endowment and country location. Graduates in 32 colleges. Experienced faculty of 15 men. Excellent dormitory, classroom, laboratory and athletic equipment. For book, "Building Scholarship," address

RALPH L. HUNT, *Principal*, Box T, Hebron, Maine

HUNTINGTON SCHOOL FOR BOYS

Five Forms. Special two-year course for entrance to M. I. T.

Summer Session (Co-educational)

Send for catalogues

CHARLES H. SAMPSON, Ed.M., *Headmaster*

320 Huntington Ave., Boston

Tel. Kenmore 1800

MOSES BROWN SCHOOL

An Endowed New England School with an excellent record in preparing boys for leading colleges. 25-acre elm-shaded campus. Athletic Fields. Gymnasium. Swimming Pool. *For Illustrated Catalog Address:*

L. RALSTON THOMAS, *Headmaster*, 257-A Hope Street, Providence, R. I.

NEW HAMPTON SCHOOL

114th year. A New Hampshire School for Boys. Six Modern Buildings. Thorough College Preparation. Junior Course in Business. Athletics for Every Boy. Moderate Tuition. *Address*

FREDERICK SMITH, A.M., Box 198, New Hampton, N. H.

NORTHWOOD SCHOOL

In the heart of the Adirondacks. Under Lake Placid Club Education Foundation. Unusual success in college preparation. Emphasis on recreation that can be continued throughout life. Winter sports. Separate junior school for boys, 8 to 12.

IRA A. FLINNER, Ed.D., *Director*, Box T, Lake Placid Club, N. Y.

ROXBURY SCHOOL

CHESHIRE, CONNECTICUT

A small College Preparatory School that has sent 250 boys to leading colleges in five years.

A. N. SHERIFF, *Headmaster*

SELECTING A SCHOOL

Suggestions as to the best school or college for the educational development of a particular boy or girl. For information and advice address

WAYNE DAVIS, *Private School and College Educational Adviser*

14 Beacon Street, Boston

SHATTUCK SCHOOL

A Church school for boys. 75th year. Stands high among schools for sound scholarship, manly character and Christian citizenship. Military training. Sends boys to M.I.T. each year.

Address The Headmaster, Faribault, Minn.

WESTMINSTER SCHOOL

College Preparatory and Junior Schools for Boys. Flexible Form System Adapted to Every Boy's Needs. 200 Acres; 20 Buildings; Gymnasium; Pool; Winter and Summer Sessions.

R. R. McORMOND, *Headmaster*, Simsbury, Connecticut

CATALOGUES

For any of the above schools will be sent on request.

Address


Business Manager, The Technology Review, M.I.T., Cambridge, Mass.

COPIES

OF ANYTHING LIBERTY 3000

WRITTEN TYPEWRITTEN
PRINTED
PHOTOGRAPHED or DRAWN

SPAULDING-MOSS CO.
REPRODUCTION SPECIALISTS
42 FRANKLIN STREET BOSTON - MASS.




BUFF

Transits and Levels are used on all largest works and by U. S. Govt. for utmost precision.
New catalog, just issued, sent gratis

BUFF & BUFF CO. Boston 30, Mass.
Handsome nickel bas-relief of a Buff Transit sent gratis to engineers

**BACK BAY ELECTROTYPE
AND ENGRAVING CO.**

MAKERS OF
HALFTONE, LINE, MUSIC, MAP,
AND DIAGRAM PLATES

ALSO A COMPLETE ART DEPARTMENT
PHOTO RETOUCHING, DESIGNING, LETTERING, ETC.

172 COLUMBUS AVE., PARK SQ., BOSTON
TEL. HANCOCK 8790

Special attention given to School Annual Work

WILLIAM P. BERKELEY
M. I. T. '27

*Equitable Life Assurance Society of
the United States*

100 Milk Street, Boston Hancock 6200

CHARLES H. JOHNSON
M. I. T. '05

LIFE INSURANCE / / / ANNUITIES
New England Mutual Life Insurance Company

80 FEDERAL STREET, ROOM 1300, Liberty 0553, BOSTON, MASS.

**MERRIMAC CHEMICAL
COMPANY**

Subsidiary of Monsanto Chemical Company

**EVERETT
MASSACHUSETTS**

*The largest and oldest
chemical concern in New England*

Founded in 1853

PUT SCIENCE TO WORK!

(Concluded from page 156)

(4) Call on the National Academy of Sciences, and its agency the National Research Council (which by Congressional charter and Executive Order are recognized advisory agencies to the Federal Government) (a) to formulate a program of research in the broad field of Public Works and to advise in the allocation of funds for its prosecution; (b) to formulate policies and procedures for support of research outside of governmental bureaus and to advise in the allocation of funds for such support; (c) to coöperate with the Science Advisory Board (whose appointment expires on July 31, 1935) in formulating a plan for increasing the effectiveness of coöperation between governmental and non-governmental scientists, with the particular objective of insuring that the scientific bureaus of the government continually reflect, in their programs and staffs, the best service which American science can render.

These suggestions are made with a certain amount of anxiety lest the program should prove a boomerang. If these public funds were made available erratically, depending upon political fortunes or policies of succeeding administrations, or if political or geographical considerations entered into their distribution, or if any other consideration than value and merit should prevail in this distribution, then governmental financial support of science would be definitely harmful. It would discourage the private philanthropy which has thus far carried the burden, it would undermine the morale of scientists and their organizations, and it would result in waste of money and effort on uninspired work bearing the guise of research.

On the other hand, the public welfare demands a strong, national scientific program; private philanthropy will probably not be able to carry the burden of this program, at least in the near future; the procedure which is here suggested would give a wonderful impetus to our scientific work in a manner to knit together the scientists of the country in effective, coöperative effort, and I am enough of an idealist to believe that it can be done without incurring the dangers to which I have referred.

THE INSTITUTE GAZETTE

(Concluded from page 148)

to think along those lines when entering upon an engineering career. Influence of such student groups will not be great in the profession for a period of years, but it is believed that the research work done by the proposed staff (or under its immediate guidance) will yield useful results, even after a comparatively short time, and that the proof of the advantages of the method can be completed relatively promptly. A large part of the work of the proposed staff will be in carrying on research of the character enumerated above, and in directing into such research some competent students interested therein."

PROFESSIONAL CARDS

JACKSON & MORELAND *Engineers*

Public Utilities — Industrials
Railroad Electrification
Design and Supervision — Valuations
Economic and Operating Reports

BOSTON

NEW YORK

FAY, SPOFFORD & THORNDIKE ENGINEERS BOSTON, MASS.

BRIDGES

WATER SUPPLY AND SEWERAGE

PORT AND TERMINAL WORKS

FIRE PREVENTION

INVESTIGATIONS

DESIGNS

SUPERVISION OF CONSTRUCTION

H. K. BARROWS, '95

M. Am. Soc. C. E.

CONSULTING HYDRAULIC ENGINEER

*Hydro-electric developments — Water supplies. Reports, plans,
supervision. Advice, appraisals.*

6 BEACON STREET

BOSTON, MASS.

STANLEY G. H. FITCH '00

CERTIFIED PUBLIC ACCOUNTANT

of PATTERSON, TEELE & DENNIS
1 Federal Street, Boston, Mass.

AUDITS

INVESTIGATIONS

New York

Boston

Washington

Baltimore

EADIE, FREUND AND CAMPBELL CONSULTING ENGINEERS

110 WEST FORTIETH STREET

NEW YORK CITY

PLANS AND SPECIFICATIONS — EXAMINATIONS AND REPORTS

Power, Heating, Ventilating, Electric, Plumbing, Sprinkler, Refriger-
ating, Elevator Installations, etc., in Buildings and Industrial Plants

J. K. CAMPBELL, M. I. T. '11

MAURICE A. REIDY

Consulting Engineer

STRUCTURAL DESIGNS

FOUNDATIONS

CONSTRUCTION CONSULTANT AND ARCHITECTURAL ENGINEER

Estimates and Appraisals

44 SCHOOL STREET

BOSTON, MASS.

BURTON W. CARY '08

MELVIN R. JENNEY '21

FISH, HILDRETH, CARY & JENNEY *Attorneys-at-Law*

SPECIALIZING IN

PATENT AND TRADE-MARK PRACTICE

53 State St., Boston

Hubbard 2496

EVERETT E. KENT

PATENT LAWYER

*Patents, Trade Marks, Copyrights**United States and Foreign*

75 Federal Street, Boston

HUBbard 0234

ARCHIBALD H. SPAULDING '14

PHILIP B. TERRY, '13

SPAULDING-MOSS COMPANY

"Reproduction Specialists"

Blue Prints Photostat Prints Planograph Prints

BOSTON

LIBerty 3000

EMERY, BOOTH, VARNEY & TOWNSEND

EMERY, BOOTH, VARNEY & HOLCOMBE

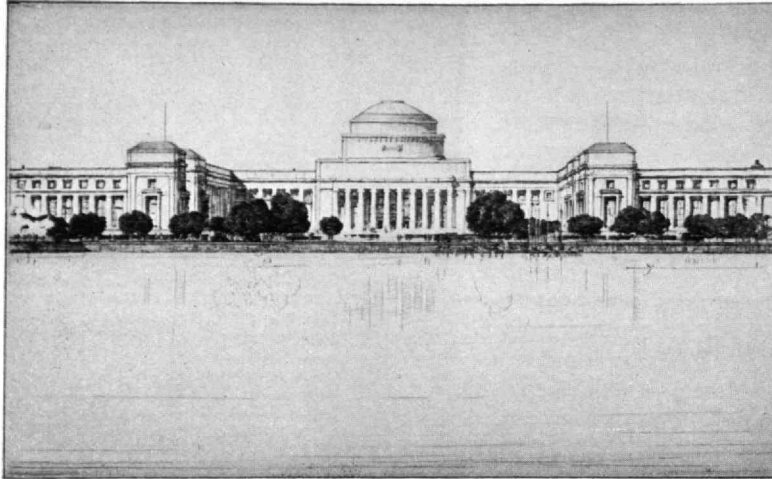
PATENT LAWYERS

THOMAS B. BOOTH, '95 AMASA M. HOLCOMBE, '04
JOSEPH Y. HOUGHTON, '26

Boston

Washington

AN AID TO INDUSTRY IN LOCATING OUTSTANDING MEN



PLACEMENT BUREAU

SINCE 1920, the Massachusetts Institute of Technology has conducted a placement service to aid industry in selecting outstanding men for positions requiring an engineering or scientific education and to assist Technology alumni in securing positions for which they are particularly fitted.

To accomplish this two-fold purpose of serving industry and alumni, the Placement Bureau is in constant search, both for new opportunities for alumni and complete records on the accomplishments of alumni. The Placement Bureau now has the experience records on approximately 18,000 alumni and has received calls for more than 3200 men since it was started.

Inquiries regarding this service should be addressed to

PLACEMENT BUREAU
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASS.

This is the first of a series of advertisements on the operations of the Placement Bureau

AN AID TO ALUMNI IN FINDING DESIRABLE POSITIONS

A REUNION IS COMING!

On June 3, 1935, a
new era in All-Technology

Reunions will be initiated. Check your calendar now! Every alumnus is invited to join the great home-coming throng that will debouch upon Cambridge on that date. Check your calendar now! Watch for announce-

ments in this space.

COMING! IS REUNION A

TECHNOLOGY MEN IN ACTION

CHECK-LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

In the News

✓ **GEORGE B. WATERHOUSE**, Professor of Metallurgy at M.I.T., on being elected trustee, for two years, of the American Society for Metals, at its 16th Annual Meeting in New York.

NATHAN DUFEE '89, member of a textile dynasty famous in the history of Fall River, on declaring that the recent textile strike was the death thrust to the industry. Mr. Dufree is head of the American Printing Company, which operates five mills. "I am not merely taking a gloomy viewpoint. The danger is very real. Fall River a few years ago had 4,000,000 spindles. Now it has 2,000,000 spindles and the majority of them are idle most of the time. . . . Cotton textiles, to compete in the world markets with Japanese cottons, have moved to cheap labor markets. It isn't the fault of the American or the English manufacturer — it's the fault of the competing nations. . . . There was something in the last strike that I had never experienced before. There was sabotage — actual tampering and wreckage of machinery. In short, someone was urging the workers to destroy the machines on which they earned their wages. . . . This was the work of the radical elements that have insidiously crept into the labor organizations — against the wishes of the union leaders. . . ."

ALLAN W. ROWE '01, for his startling announcement to the American College of Surgeons that the cause of childlessness in a large number of marriages as well as the cause of progressive deafness in fully two-thirds of cases examined, has been traced by him and his associates directly to improper functioning of some of the glands of internal secretion. Of a hundred childless couples examined, fully half have been restored to normal through means suggested by the endocrine research of Dr. Rowe. This rôle of the glands has been found to play an important part in other vital functions. Dr. Rowe, formerly Director of Research at the Evans Memorial Hospital, Boston, was a specialist in endocrinology.

Elections and Appointments

✓ **WILLIAM C. POTTER** '97, nationally known figure in finance and manu-

facturing, elected to the board of trustees of Notre Dame University. Mr. Potter is chairman of the Board of the Guaranty Trust Company of New York.

✓ **MILES S. SHERRILL** '99 and **NICHOLAS A. MILAS**, elected President and Secretary-Treasurer, respectively, of the Technology chapter of the American Association of University Professors. Both are members of the Department of Chemistry, M.I.T.

✓ **TENNEY L. DAVIS** '13, appointed departmental editor for the history of chemistry in the *Journal of Chemical Education*. Secretary of the History of Chemistry Division of the American Chemical Society from 1926 to 1934, he was made chairman of that division at the Cleveland meeting in the fall. **WALTER G. WHITMAN** '17 became chairman of the Industrial and Engineering Chemistry Division and **PER K. FROLICH** '23 became a member of the Executive Committee of the Petroleum Chemistry Division.

WILLIAM C. MORSE '27, appointed Head of the Department of Geology and Director of the Mississippi Geological Survey of the University of Mississippi. For 16 years he was Head of the Geology Department at Mississippi State College, during one year of which he attended Technology and during another he was Visiting Professor of Geology at the University of North Carolina.

Written

By the late LOUIS H. SULLIVAN '74, a book entitled "Kindergarten Chats," a series of lectures to the lay and student mind on architecture, education, and democracy. This book was recently published by special arrangement with the executor of the estate of Mr. Sullivan, who died April 14, 1924, by Scarab Professional Architectural Fraternity. "The noble position in the architectural world held by Mr. Sullivan is no longer challenged and his prophetic and immortal writings are described in the words of Claude Bragdon, New York architect and author: 'By reason of that consensus of dispassionate opinion which bestows the laurel with so sure a hand, Louis Sullivan has now his place in the pantheon of America's representative men.'" Mr. Sullivan is well known

for his book of architectural philosophy entitled "Biography of an Idea" and his work presaged the development of the skyscraper. One of his notable contributions to architecture was the Transportation Building at the Columbian Exposition in 1893.

About HERBERT R. MOODY '92, a full and interesting account of his active career as a chemist, in the "American Contemporaries" section of *Industrial and Engineering Chemistry* for November 20.

By LUTHER R. NASH '94, Vice-President, Stone and Webster Engineering Corporation, an article entitled "The Forgotten Man in the Depreciation Controversy," in the October 25 and November 8 issues of *Public Utilities Fortnightly*.

About CHARLES H. HERTY, Jr. '21, an article in *Industrial and Engineering Chemistry* for November 20, "Fathers and Sons in American Chemistry." In 1928 he received the R. W. Hunt Medal from the A.I.M.E. for his contributions to American steel practice and in 1930 he delivered the Campbell Memorial Lecture before the American Society of Steel Treating. "It has been his opportunity to pioneer in a very important industry," says the article, "and already he has earned an authoritative place therein."

By PARKER MORELL '28, a book, "Diamond Jim: The Life and Times of James Buchanan Brady," published by Simon and Schuster. Mr. Morell is now in Hollywood, where his book is being translated into a talkie.

By FRANKLYN J. LAMMERS '29, an article in *Industrial and Engineering Chemistry* for November on "Water Purification in the Modern Brewery and Distillery."

Presented

By WARREN K. LEWIS '05, at the American Petroleum Institute, a paper which he wrote in conjunction with L. Squires, on "Structure of Liquids and the Mechanism of Viscosity."

By PIERRE S. DUPONT '90, William A. Harriman, and Walter S. Gifford, members of the Committee on Statistical Reporting and Uniform Accounting for Industry, a report to the Business Advisory and Planning

Council, Washington, urging more adequate reporting of industrial statistics.

¶ By WILLIAM W. DRUMMEY '16, the Annual Report of the Department of School Buildings for 1933 to the City of Boston, members of the School Committee, and Board of Commissioners of School Buildings.

¶ By GLENNON GILBOY '25, a paper on "Mechanics of Hydraulic-Fill Dams" at the May 16 meeting of the B.S.C.E.; reprinted in their *Journal* for July.

¶ By LEO JÜRGENSON '26, papers on "The Application of Theories of Elasticity and Plasticity to Foundation Problems" and "The Shearing Resistance of Soils," before the Boston Society of Civil Engineers.

¶ By NORBERT WIENER, staff, a lecture on "Fourier Transforms in the Complex Domain," at the 40th meeting of the American Mathematical Society.

DEATHS

¶ JAMES C. S. TABER '76, November 11.

¶ GEORGE A. FREEMAN '77, November 16.

¶ ARTHUR W. THAYER '77, November 17. Mr. Thayer, although he studied civil engineering at M.I.T. for two years, was a composer, musician, and conductor, knowing personally many of the leading conductors and composers of both this country and Europe. He had taught music for several years in Dedham, Milton, and Quincy schools, and for some years was organist at St. Paul's Episcopal Church, Dedham. Mr. Thayer had sung in many churches throughout Greater Boston and also in light opera. As conductor he had led glee clubs in many cities and the Worcester Festival chorus was trained by him in the absence of Carl Zerrahn. He had trained the Harvard Glee Club, the Schubert Club of Dedham, and the Dedham Glee Club; he collected and trained the chorus for the 25th anniversary of the First Peace Jubilee; and for seven years he trained the Woman's Symphony Orchestra of Boston.

¶ HENRY MARTIN '85, November 12.

¶ FRANK L. LOCKE '86, November 23. The following account appeared in the *Boston Globe* for November 24: "Colonel Locke was for many years an active figure in the affairs of Technology. Twice a term member of the Institute's Corporation and from 1928 to 1933 head of the employment service for Technology graduates, he was widely known in educational circles throughout New England.

"Following his graduation from the Institute in 1886, Colonel Locke served for a year as instructor of drawing and civil engineering. He then engaged in engineering work for the City of Boston from 1887 to 1895, when he joined the staff of the Boston Rubber Shoe Company as assistant superintendent, later becoming superintendent. He relinquished this position in 1907 to accept the Presidency of the Boston Young Men's Christian Union, which he occupied until his appointment in 1928 as personnel director at Technology.

"In 1885 he enlisted in Troop D of the First Cavalry of the Massachusetts Volunteer Militia, and in 1897 was appointed to the rank of Colonel and Assistant Inspector General. He was a past President of the Technology Alumni Association, and served on the Corporation from 1906 to 1910 and from 1921 to 1926. For a year he was a member of the Visiting Committee for the Department of Military Science and Tactics.

"Colonel Locke long maintained a keen interest in various branches of social service. He was a trustee of the Norfolk State Hospital and a member of the Corporation of the Malden Hospital. He also was a member of the Cambridge Industrial Association, the Unitarian Laymen's League, the Hamilton Association, Boston Chamber of Commerce, and the Boston City, Engineers, Rotary, Unitarian, Puddingstone, and University Clubs.

"He was born in Boston, July 14, 1865, the son of James Lovering and Sarah Maria (Swallows) Locke. In 1901 he was married to Miss Mary Broadhead Kendall of Malden. He leaves his wife and three children, John Lovering, Nancy Lovering, and Eleanor Broadhead Locke." (See front section for further comment.)

¶ SANTIAGO F. ANDRE '88, date unreported.

¶ JAMES S. NEWTON '88, date unreported.

¶ JAMES M. NELSON '93, date unreported.

¶ GEORGE W. FRANK '94, date unreported.

¶ GEORGE E. HOWE '95, October 29. (See class notes for brief account.)

¶ CHARLES L. GLASS '96, date unreported.

¶ CARROLL A. CAPEN '97, November 25.

¶ BESSIE H. WILLIAMS '97, date unreported.

¶ LOUIS J. POTTS '99, date unreported.

¶ RUSSELL P. PRIEST '00, March 12.

¶ DR. ALLAN W. ROWE '01, December 6. (See class notes and front section for account.)

¶ ARTHUR G. SLOCUM, Jr. '03, date unreported.

¶ MORTIMER F. SMITH '04, date unreported.

¶ NORMAN F. KERR '04, date unreported.

¶ ANNA M. HAMMERSTROM (Mrs. William G.) '06, October 26.

¶ KENNETH MOLLER '07, November 10. From a recent newspaper: "Mr. Moller was born at Yonkers, N. Y., December 10, 1883, the son of William F. and Fannie (Clark) Moller, the latter still living. He prepared for college at Noble and Greenough's School and following his graduation from Harvard with the Class of '06, he studied for two years at the M.I.T. and remained there for two more years as instructor in mechanical engineering. He left there in 1909 to become designer and engineer for the Fuel Oil Engine Company of Providence, R. I., and in 1910 became associated with Jenckes Spinning Company of Pawtucket, R. I., becoming general superintendent and finally Assistant Treasurer. He helped build and operate the Katama Mills for William Whitman Company in Lawrence and in 1918 entered the service of the quartermaster corps in the position of chief of the manufacturing division, in charge of manufacturing into uniforms and service equipment all the cotton and woolen goods purchased by the Army. . . ." (See class notes also.)

¶ HORACE S. SARGENT '08, November 29. Mr. Sargent was connected with the submarine Signal Company of Boston and was formerly associated with the Stanley Steamer Company of Newton.

¶ PLUMER H. SMITH '09, date unreported.

¶ ROBERT R. STANLEY '11, November 23.

¶ JOSEPH F. FINNIGAN '13, date unreported.

¶ VERNON ROBINS '17, Jan. 1, 1934.

¶ FRANCISCO M. LOBOS '20, October 6.

¶ LAURENCE V. HARRIS '22, November 11. Mr. Harris was born 36 years ago in Manchester, Vt., and went to Winsted in 1915 when his father became rector there. He was a graduate of Columbia, and attended the United States Military Academy at West Point. Later he was graduated from M.I.T. as a geological engineer. For some time he was with Kuhn, Smith and Harris, building contractors of New York City. He is survived by a widow, three sons, his father, a brother, and a sister.

¶ RAMON R. ARIAS '27, November 11. (See Panama Club Notes.)

¶ MORRIS GOLDBERG '31, November 9.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Technology Club of Panama

Major Covell '23 gave a most delightful, informal supper in honor of the six 1934 graduates recently arrived to work for the Panama Canal. The following is from a local paper: "Major William E. R. Covell, Assistant Engineer of Maintenance of the Panama Canal, gave an informal supper party Saturday evening at his home on Balboa Heights for the Alumni of M.I.T., complimenting a group of young graduates ('34) who have recently been employed by the Panama Canal: the Messrs. J. J. Carey, E. K. Murphy, C. W. Chase, Jr., K. F. Ryder, J. P. Eder, and M. S. Stevens. Among those entertained with the honor guests were Major Holland L. Robb '21, Lieutenant Commander Charles F. Osborn '20, Lieutenant Roy T. Cowdrey '23, Lieutenant Clarence Renshaw '32, and the Messrs. A. W. Brooks '11, J. E. Deignan '26, Lewis B. Moore '26, I. F. McIlhenny '23, E. L. Koperski '30, Meade Bolton '16, W. H. Beers '05, and Eduardo Icaza '23, Manuel P. Calderon '30, Jorge I. Barnett '30, Ramon Arias '27."

William H. Beers was among overnight visitors on the Pacific Side and was among guests of Major W. E. R. Covell, of Balboa Heights, who entertained for graduates of the M.I.T. There were 22 in all and this is the first time that so many Technology men have gathered together in this part of the world. Needless to say, the party was a great success. Major Covell had a wonderful buffet supper prepared and his guests enjoyed the tender ham, the salads, the native vegetables, native fruits, and did ample justice to the big keg of cold beer. Tech songs were sung, many stories told, and it was a very enjoyable evening. The oldest one, the oldest graduate I mean, of course, was W. H. Beers, who came all the way across the continent especially to attend this party. Although Beers has been here on the Canal Zone as long as I have been, since 1916, this is the first time I have ever met him. He is in charge of the Agua Clara Filtration Plant which supplies water to Gatun, Fort Davis, and Fort Sherman at the Atlantic end of the Canal.

The six 1934 recently arrived Technology men have been assigned to their different posts and are all now hard at work. During this depression age, it is apparently difficult to get a job. Chase said on the boat coming down that he hoped the Panama Canal would appreciate them as much as they appreciated the Panama Canal. All six have been rated as "recorders" with varying duties depending on the division to which they have been assigned: Carey and Murphy to

the office of the Assistant Superintendent of Atlantic Lock Division, Gatun; Chase to the Electrical Engineer, Balboa Heights; Eder to the General Manager's Office, Mt. Hope; Ryder to the General Foreman, Ancon Corral; and Stevens to the Superintendent of the Dredging Division, Paraiso.

And here is an interesting note which appeared in a local paper dated October 1: Governor Schley appointed L. B. Moore '26 head of the Plans Section at Balboa Heights, reporting directly to the Engineer of Maintenance. This is a big job and a big order, and the list of duties given in connection with the position sounds most impressive and important. Moore has been preparing especially for this job for some time. Congratulations are quite in order: to Moore for getting such a good job, and the job for getting such a good man.

And here is another interesting note which appeared in the same local paper, dated August 28, 1934: "Lieutenant Roy T. Cowdrey '23, naval assistant to the Superintendent of the Balboa Mechanical Division, has been placed on the selection list for promotion to the rank of Lieutenant Commander and will take his examinations in a few months. Lieutenant W. M. Hague '23, former assistant to the Superintendent and now stationed at the Mare Island Navy Yard, has also been selected for promotion to the same rank." Poor old Cowdrey, isn't it too bad, he can't be a full Lieutenant any more.

Ships that pass in the night. Here's one that slipped through here on August 27, 1934, without my having seen it at all: "With a capacity load of 600 cruise passengers from the West Coast, the S.S. *Pennsylvania* arrived in Balboa Monday morning en route to New York. Among the passengers of importance who visited Panama Monday during the stop-over of the ship were Dr. J. C. Boyce, scientist at the M.I.T., and Mrs. Boyce."

September this year I was in the Pearl Islands. A party of us rented a motor boat, loaded on supplies at the Balboa Boat Club, and in a drizzly rain chugged out of the Canal into the bay of Panama. For a short time we fished around the Islands of Taboga, Taboguilla, Otoque, and Bona and caught a few Jack and Spanish mackerel; then we headed southeast for the Pearl Islands and into a heavy rain-storm and a stormy sea. The boat was quite a seaworthy craft, about 40 feet long with a 9½-foot beam, but the sea was rough and the deck sloppy. It was a miserable, shivering little group, huddled together on the partially covered back deck, with three or four fishing disconsolately with troll lines.

Soon the Islands of Taboga, Taboguilla, Otoque, and Bona became gray and dim and disappeared, obliterated by

a curtain of rain. The sky was black, the sea leaden colored and heavy, and a gusty wind drove the heavy rain in torrents across the deck. We were thoroughly soaked. About this time we ran into a school of bonito and our enthusiasm revived considerably. We quite forgot the storm when we got strikes and began to haul in a few. When we thought about the storm again, it was gone, the rain was over, though the sea was still rough and choppy, the sky had cleared a bit, and the sun shone here and there through rifts in the angry sky.

We could see the Pearl Islands; ahead a bit to the starboard we saw the higher, bigger Island of San Miguel, blue in back of Pedro Gonzalez right near the little speck of an island used by the sailfish club as their headquarters. We were sheltered from the wind, the rain had stopped entirely; in the south and east the sky was rather clear and a nearly full moon was breaking through the dark, wild clouds overhead. Ashore a few weak flickering lights indicated a small, native village. After a mackerel supper a "penny-ante" game was started in the little narrow cabin under the forward deck. I was too tired and weary to join in, and was glad to roll up on deck in a musty, smelly, old blanket, wet clothes and all. It got very cold and I had to pull the blanket up over my head with only eyes and nose exposed. Sleep was fitful and often I was quite wide awake. During the night I could hear occasionally the poker players mumbling their jargon and the clink of poker chips. Several stars came out, clear and bright. The night became mysteriously weird; the shore line dark, indistinct, inky black where trees and jungle spread low over the water.

As we rocked and swayed gently at anchor, little wavelets slapped and rippled against the sides of the boat; a cold wind with eerie sighing drove misty white clouds across the tree tops; and I heard that strange, tropical song that starts as dusk descends, and continues through the night — a wild, unmeasured song, sometimes loud, shrill and unmusical; sometimes soft and low; again a quite calm monotone, swelling with the dawn into a grand crescendo of tropical creature sounds.

The rhythmic smashing of waves on some nearby rocky beach, the running swish of water dwindling into a ribbon of phosphorescence along the sand, the weird hooting of an owl, the cry of a startled bird, the occasional inexplicable splash in the dark water with ever-widening circles glistening like silver bands, and other now forgotten sounds so typical of the tropics — all formed a melody to which tree frogs, crickets, locusts, myriad small animals and insects, a countless million voices, sang a continuous, monotonously haunting chorus.

With a glorious dawn came signs of life. From scraggly palm huts, half hidden in the matted jungle surrounding the cave, rose thin lines of smoke; some cocks began to crow; natives appeared on the shore; presently a tiny cayuca, made of a hollowed log, came alongside, paddled by two flat-faced, swarthy, coarse-haired natives who sold us a small handful of valueless, irregularly shaped little pearls.

We weighed anchor early and with several lines aft, trolled back and forth between the many islands through scattered lines of light driftwood. For several hours I sat in full harness, butt rest and all, prepared for the thrill of the sailfish "strike," which never came. Some of the others, on spoons with smaller hooks, caught a few mackerel, corbinas, bonitos, a funny blowfish, and one or two other strange fish that abound in these tropical waters. In the early afternoon we headed across the wide stretch to Otoque and Bona under a red, hot tropical sun. We sat, tired and lazy, in the shade of the canvas awning stretched over the aft deck, drinking bacardi punches, smoking, and telling stories of other fishing trips. Way up on the sky were frigate-birds, gliding and sailing magnificently and many cormorants, those long, thin-necked, curved-beak fish ducks, flying in characteristic "V" formation. A few majestic, humorously inquisitive pelicans paralleled us for a while; once a sooty-colored Albatross encircled our boat; and now and again many white sea gulls squawked over our wake. About half way between the Islands, in among frantic little flying fish, we ran through a very large school of dark, bluish-gray dolphins, leaping over the ocean in graceful curves.

The ragged outline of the mainland of Panama, blue in the distance, curved around us. To the west, disappearing behind the Pearl Islands, we could see the ancient state of Darien bordering on the bay of San Miguel, and it was in another September, just 421 years ago, that Vasco Nuñez de Balboa, with his party of 67 men, made that historic march across the Isthmus, over long-forgotten Darien trails, and discovered this same "South Sea" upon which we were cruising.

After rounding Bona and Otoque, Taboga, and Taboguilla, we headed back into the Canal, past the fortified islands and landed at the Balboa Boat Club, as the setting sun, painting the entire sky in gorgeous sunset colors, made a fitting climax to a wonderfully interesting trip.

There is something about all this that is hard to explain. The restless ocean, fish, birds, colors in the sky, varying weather, even the penetrating tropical sun, all combined to give to me that infinite thrill of romance and adventure.

Just before these notes went to press, we received the sad news of the death of Ramon Arias '27. The following account appeared in the *Panama American* on November 13: "Ramon Ricardo Arias, 30 years old, born in Panama, of a prominent Panamanian family, graduate of West Point, M.I.T. 1927, Lieutenant U. S. Reserve Corps, first graduate Pana-

manian aviator, and a naturalized citizen of the United States, met tragic death on Sunday, November 11, when his motor plunged from a bridge into the Martin Sanchez River. Mr. Arias was returning to his home in Panama after a visit to his family's farm, 'El Limon,' near the town of La Chorrera. Incessant rains had made the road slippery and apparently Mr. Arias's car skidded as it started over the bridge, which was devoid of rails. He was pinned under the car, when found early the next morning, and a scar on his forehead indicated that he had been knocked unconscious." — MEADE BOLTON '16, *President*, Box 23, Balboa Heights, Canal Zone.

Technology Club of Hawaii

A meeting of the Club was held on November 6, which took the form of a dinner, with the following members present: Carl B. Andrews '28, Captain F. H. Cooke '00, U.S.N., S. T. Carr '06, H. P. Field '21, Lieutenant N. W. Gokey '17, U.S.N., A. R. Keller '16, Commander E. L. Patch '10, U.S.N., Dudley W. Smith '28, and Lieutenant J. H. Spiller '33, U.S.N. The particular item of the meeting was the showing of the Technology movie, which was enjoyed very much. The only comment was that the outside scenes showing what an engineer does might be improved by giving specific titles. (This is now remedied by the printed description which accompanies the picture wherever it is shown.) The Navy members of the Club were so much taken with the movie that they arranged for another showing at the U. S. Navy Yard at Pearl Harbor before additional Technology men and others interested. All regretted that Bill Furer '06, the Honorary Secretary, and the live wire of the Technology group, had been ill in the hospital and was unable to attend the meeting. — SIDNEY T. CARR '06, *Secretary*, Hawaiian Electric Company, Ltd., Honolulu, T. H.

Washington Society of the M.I.T.

A record turnout of 67 were present at the second regular luncheon meeting of the Society, which was held at 12:45 P. M. Friday, November 16, at the University Club. We were pleased to entertain in addition to our speaker, Mr. Robert Chapin Huntington, G. W. Spaulding '21, Secretary of the Baltimore Society, R. C. Brehaut, Emil Schracr, and C. R. Olberg. Mr. Huntington, who was Commercial Attaché at the American Embassy in Petrograd from 1916 to 1918, gave us a most interesting talk on the changes that have occurred in Russia since the War.

Among those present were: W. K. MacMahon '22, W. E. Swift '95, A. W. Greely, Jr. '13, J. Garfield Riley, Jr. '06, H. W. Tyler '84, A. B. McDaniel '01, P. H. Thomas '93, P. L. Dougherty '97, Allen Pope '07, Katharine Carman '33, B. E. Lindsly '05, N. D. FitzGerald '31, Leo Teplow '26, E. J. Sax '27, R. Ilsley '25, W. I. Swanton '93, A. P. Bruce '33, E. D.

Merrill '09, F. M. Moss '32, L. J. Grayson '19, G. W. Stose '93, J. R. Morton '22, H. L. Lyman '04, B. A. Howes '97, N. C. Grover '96, D. A. Tutein '17, Hewitt Crosby '03, W. E. Lutz '18, C. P. Kerr '11, A. E. Beitzell '28, D. S. Stanley, Jr. '30, R. V. Giles '24, C. W. Brown '99, M. Boyle '98, F. L. Ahern '14, G. R. Williams '29, W. C. Mehaffey '17, E. H. Lloyd '33, J. C. Todd '23, J. D. Fitch '24, O. L. Hooper '23, J. H. Lenaerts '12, A. M. Holcombe '04, B. F. Thomas, Jr. '13, W. M. Corse '99, W. E. Parker '99, D. J. Guy '12, F. E. Fowle '94, W. B. Poland '90, R. T. Hall '19, Samuel Bensinger '31, F. P. McKibben '94, A. L. Sherman '06, J. Y. Houghton '26, and W. A. Danielson '26. — J. Y. HOUGHTON '26, *Secretary*, 406 Munsey Building, Washington, D. C. EDMUND H. LLOYD '33, *Assistant Secretary*, 3736 Kanawha Street, N. W., Washington, D. C.

Technology Club of Oregon

Through the coöperation of Glenn Stanton '21, Ernest MacNaughton '02, and Herbert Angell '11 with the Secretary, an impromptu meeting of the club was held at the University Club at eight o'clock, Monday, November 19. Dr. Tryon showed the Technology movies to approximately 15 men who found them extremely interesting. Plans were made, and subsequently carried through, for Dr. Tryon to visit Grant, Benson, Franklin, Roosevelt, and Washington High Schools, and also Reed College, the Oregon Institute of Technology, and Hill Military Academy. Mr. Stanton entertained Dr. Tryon at breakfast Sunday morning, November 18, and took him up to the Bonneville Dam, and around Mt. Hood on the Loop highway. The Club hopes that other representatives of M.I.T. may find opportunity to visit them, and looks forward to further visits from Dr. Tryon. — R. E. CUSHMAN '06, *Secretary*, 2827 N. E. Bryce Street, Portland, Ore.

Technology Club of New Hampshire

A meeting of the Club was held at the Carpenter Hotel, Manchester, on Friday, November 9, with an attendance of 33 members and 12 guests. Dinner was served at 6:30. Norman S. Bean '94, President of the Club, acted as toastmaster. This was the first meeting of the Club since May, 1931. Those in attendance from Technology were President Compton, Treasurer Ford, Alumni Secretary Locke, Dormitory Board Chairman Hamilton, and J. Warren Horton '14, our representative on the Alumni Council.

President Compton spoke on some of the aspects of modern technical education. He called attention to the fact that undergraduate curricula are slowly drawing away from their recent complexity and are returning once more to basic instruction in sound principles of pure and applied science. Since the larger companies and corporations are training young men after they leave college today for some particular job, it is imperative that

Plan to attend Alumni Day at M.I.T. on June 3, 1935

technical schools give men the basic principles upon which they can build their future instruction. M.I.T. is also attempting to equip its men with a background they can use in conjunction with their mechanical training. Every year, continued Dr. Compton, new courses in economics and business administration are added to the curriculum. The demand for intelligently trained men will be even greater in the future, for new inventions are creating new fields and new situations continually. In addition, the gradual curtailment of our natural resources will demand intelligent, capable handling. Dr. Compton deplored the fact that the country in cutting its budget has harmed research in the field of pure and applied science.

Professor Locke, who is one of our own New Hampshire men, described the activities of the Alumni Association and the Technology clubs, stressing the greater coöperation now existing between them and the Institute. He expressed the regrets of Dr. Allan Winter Rowe '01 who was to be present but was prevented by illness. Treasurer Ford gave us a vivid picture of some of the more important aspects of the financial side of Technology. Members were surprised to learn that there were 1,000 employees on the pay roll, counting instruction and service. Professor Hamilton spoke of the government of the dormitories and their relation to the social and athletic activities. He contrasted the old days, when the great majority of students were "brown-baggers" who had little contact with the activities, with the present when about half of the students live either in the dormitories or fraternity houses.

J. Warren Horton made a campaign speech resulting in his reelection. He spoke at some length of the vast amount of research now being carried on at M.I.T., and of the new and improved methods of working out the various problems. Quite often these problems are so new that even the instructor knows nothing about them, and he is therefore on the same level as the student, a relation that seems to be desirable. Altogether this part of the program was very interesting and well balanced, and gave to the alumnus who has been out a few years just such a picture as would be of interest. The Club is deeply indebted to the speakers for their contribution to the success of the meeting.

At the conclusion of the speaking the Edgerton high-speed film was shown, H. D. Swift '15 being the operator, and it was much enjoyed. Swift ran also some films of his own which were very interesting, particularly the one in color showing part of the inauguration of Dr. Compton. Thanks are due to the Public Service of New Hampshire for the use of a projector, to Hunt '95, Jackson '95, Moss-crop '20, as well as to Swift '15. A short business meeting followed during which the following officers were elected: President, Frederic E. Everett '00; Vice-President for Manchester, Walter D. Davol '06; for Concord, Guy A. Swenson '12; for Nashua, Jason T. Bickford '25;

Representative to the Alumni Council, J. Warren Horton '14; Secretary-Treasurer Malcolm C. Mackenzie '14, Derry Village, N. H. Guests included L. P. Benizer, Superintendent of Schools, Manchester; John H. Bell, Principal of Pinkerton Academy, Derry; W. P. Straw, Manchester; C. H. Gordon, T. Knox, and H. A. Worthen. Members present were: Abbott '06, Africa '15, Bean '94, Blaisdell '34, Chandler '16, Chase '74, Clough '91, Connor '88, Davol '06, Dowst '15, Emerson '27, Farr '33, Faunce '34, Foster '30, Hall '32, Higgins '31, Holden '99, Hunt '95, Jackson '95, Langley '19, Mackenzie '14, Magenau '34, Moss-crop '20, Norton '27, Rich '26, Roberts '04, Smith '11, Stiller '34, Swift '15, Thompson '05, White '16, Whitney '23, and Worthen '32. — MALCOLM C. MACKENZIE '14, Secretary, The Benjamin Chase Company, Derry Village, N. H.

Technology Club of Puget Sound

The first dinner meeting of the year was held at the Faculty Club of the University of Washington on Thursday evening, October 18. In addition to Dr. H. K. Benson, the speaker of the evening, 25 members were present.

It was announced that Dr. Tryon of the Institute would be in Seattle the middle of November and plans were made for a meeting to be held November 15. A committee was named by Chairman Lasher, composed of Scott Matheson '99, J. W. Pratt '23, and H. W. McCurdy '22, to entertain Dr. Tryon during his stay. It was also planned to have Dr. Tryon address as many groups of prospective Technology students as possible.

Dr. Benson's talk on the chemical industry in the State of Washington was very well received and very informative. Dr. Benson considered the possibilities of different areas as potential producers of chemicals and products of the process industries, utilizing, to as great an extent as possible, the basic raw materials found in that particular locality. He then coordinated the products and processes of these smaller localities into a general scheme to show that, as a chemical center, the Pacific Northwest could become almost self-supporting. Because of such factors as cheap hydroelectric power, timber, transportation, and climatic conditions, such varied products as ferro-alloys, aluminum, organic solvents, synthetic wood, and many other necessary commodities could be manufactured cheaply here. His talk was very clearly illustrated by means of flow sheets. Dr. Benson found the members to have a good many questions to be answered and the informal discussion showed that a great deal of interest is being taken in subjects of this nature.

Those present were: Clarence E. Lasher '06, Ralph L. Dyer '06, Winston A. Gardiner '22, Q. P. Peniston '33, George E. Mason '25, Chester J. Hogue '99, T. McK. Rowlands '26, Lee Dow '10, R. G. Tyler '10, H. G. Schwarz '33, Robert S. Prescott '32, Thomas J. Killian '25, F. D. Hayden '03, A. E. Goermer, J. L. Mc-

Allen '11, F. E. Strickland '26, H. H. Whithed '11, Joseph Daniels '05, Scott Matheson '99, Clancy M. Lewis '99, E. D. Rich '34, Charles H. Alden '90, J. W. Pratt '23, E. W. Rudow '21, O. J. Moreland '33. — FLOYD A. NARAMORE '07, Secretary, 511 Central Building, Seattle, Wash.

Technology Association of Minnesota

The Club held a dinner meeting October 25 at the Minneapolis Club. Daniel Belcher '09, President, was in charge of the arrangements for the dinner. There were about 20 members present. Dr. J. L. Tryon of the Institute was guest of honor and speaker. He showed the Technology movies and gave a short and interesting speech.

At that time I. R. Mitchell '30, Houghton Elevator and Machine Company, New York Building, St. Paul, was elected St. Paul Secretary. Charles Drew '19 planned Dr. Tryon's trips about the city and state. — MILDRED L. COOMBS '20, Secretary, Route 1 R.F.D., Hopkins, Minn.

Technology Club of New York

Despite the depression the membership is still on the increase. At the last meeting of the Board of Governors, four new members were accepted: Milton G. Salzman '25, Paul L. Miller '24, Robert Rouls-ton '34, Charles M. Parker '34.

The Duplicate Contract Bridge Tournaments, under the supervision of Al Glas-sett '20, are as popular as ever. In fact, at both of the last meetings six tables were played. Two of the winners of the October 18 meeting were of the Class of '34. The Class of '34 luncheon was very well attended. It is interesting to note that four members of last year's crew are now members of the Club.

The monthly smokers will start in about two weeks. William J. Barrett '16, Chairman of the Entertainment Committee, has promised an interesting speaker for the first meeting. Our President, Jack Burbank '16, is still driving for new members and is particularly anxious that the men of the older classes come around and see what we have to offer. He strongly urges these men to show up for one of the smokers or one of the bridge tournaments, where they will be most welcome. — ASHER L. WEIL '01, Secretary, 22 East 38 Street, New York, N. Y. RICHARD L. AHEARN '16, Review Secretary, Western Waterproofing Company, Inc., Grand Central Terminal, New York, N. Y.

Technology Club of Lake Superior

An informal dinner at the Kitchi Gammi Club on the evening of October 29 again demonstrated the fact that while the Club is not noted for frequent meetings, the spark of loyalty to our Alma Mater is ever alive, ready to burst forth into action when occasion demands. The occasion in the present instance was another too infrequent visit of Dr. Tryon in his tour of the country, broadcasting the

seeds of technical and scientific education in general and the brand offered by "Boston Tech" in particular.

When it became known a few weeks ago that Dr. Tryon would pass this way, a very cordial invitation was received from Dean R. D. Chadwick of the Duluth Junior College to have him address the junior and senior classes in engineering. This he did, receiving very close attention from 60 or more students of that department. Dr. Tryon's "Romance of Engineering," as it might be termed, is most graphic, carrying his hearers from their high-school days, through the years of gradually intensified study at the Institute, and on to the unlimited fields of post-graduate effort in scientific or commercial life. Dr. Tryon spoke again in the afternoon to some 200 students of the Central High School, Superior, where he was welcomed by Principal C. G. Wade, a good friend of Technology.

In the words of the radio announcer, we now return you to the banquet table spread for 13, which fact, however, seemed to have no depressing effect on the guests. A very brief business meeting preceded the evening program. President Holman I. Pearl '10, a resident of Crosby, Minn., had tendered his resignation, stating that he was too far away to attend meetings. His resignation was accepted with regret that he should deem it necessary. A nominating committee consisting of Charles D. Brewer '02 and William C. Lounsbury '04 reported as candidate for President, William R. Peyton '90, a staunch upholder of Technology and all its traditions. Mr. Peyton was unanimously elected. In the excitement of this campaign the Secretary's plea for relief from his onerous duties was entirely disregarded. There was not even a suggestion of increase of salary. Verily, the Secretary is a long suffering individual!

Dr. Tryon spoke briefly of present-day Technology, of the changes that have occurred in the personnel of the staff, and in the development of the numerous courses to meet the demands of science and to keep the Institute in the foremost rank of technical schools. Not the least of the program, in interest, was the moving picture showing much of the physical equipment of laboratories and plant. It was evident that Dr. Tryon made a decided impression on the young men to whom he spoke during the day, both from the substance of his message and from his own kindly personality. Come again, Dr. Tryon. — FRANK HAYES '90, Secretary, 614 Woodland Avenue, Duluth, Minn.

M.I.T. Club of Western Pennsylvania

"Financial Obstacles to Recovery" was the subject of the address at the first dinner meeting of the year. The meeting was held November 7 at the University Club. The speaker was Professor George K. McCabe, Head of the School of Business Administration of the University of Pittsburgh. This speaker was already

known to our group, having spoken to us two years ago. He outlined some eight obstacles with the authority of one who knows his business, and gave us encouragement that several of these might be hurdled in the near future. In the subsequent discussion, the graduates of our own high-powered courses in economics showed that they differed with the speaker in methods only, rather than in fundamentals. Malcolm G. Davis '25, who was acting for our absent Treasurer, M. M. Greer '26, in trying to collect current dues, was all for giving several other obstacles not mentioned by the speaker, based on his experience of a very practical nature.

The attendance was 28 members. The punch supply could have taken care of several more, and it is suggested that those who are not attending these meetings are missing some very enjoyable get-togethers. — SAMUEL J. HELFMAN '24, Secretary, Philadelphia Company, 435 Sixth Avenue, Pittsburgh, Pa. E. J. CASSELMAN, Assistant Secretary, Mellon Institute, Pittsburgh, Pa.

New Haven County Technology Club

The annual meeting was held on October 17, at the Waterbury University Club. After a very splendid dinner, a short business meeting was held, all the retiring officers of the club submitting their final reports, covering the activities of the past year. After all the reports had been heard, H. G. Manning '12, the retiring President, introduced the new officers, as follows: President, Marshall S. Wellington '16; Vice-President, T. C. Merriman '09; Secretary, Earl L. Krall '30; Treasurer, William C. Hodges '22; Governor-at-large, Harold G. Manning '12.

Upon the conclusion of the business meeting, Charles E. Smith '00, past President of the Club, a very loyal member, and present President of the Technology Alumni Association, told us briefly of the proposed plans for future Technology reunions and then introduced our speaker for the evening, Dr. Vannevar Bush '16, Vice-President of the M.I.T. Dr. Bush talked to us about the new field house built at Technology this past summer, showing us slides of the new building. The remainder of the evening was spent in an informal discussion during which Dr. Bush answered many questions put to him by those present, pertaining to the Institute at the present time.

On December 7 the Club held a very successful dance at the Yale Faculty Club in New Haven. This event, which is an annual one, shows a larger attendance each year. Dancing was enjoyed from 9 to 12 P. M. to the music of a very fine orchestra. Preceding the dance, dinner was served to several members and their wives, who enjoyed a very excellent meal.

The next activity of the club will be a meeting late in January arranged by a committee composed entirely of the younger members of the club who will endeavor to arrange a program that will be of particular interest to the more recent

graduates of the Institute now residing in our district. — EARL L. KRALL '30, Secretary, 95 Park Street, New Haven, Conn.

CLASS NOTES

1874

"Still in the ring," although its known membership has dwindled to seven and for a long time it has been dormant, in so far as the columns of The Review are concerned. Notice that Holbrook was coming on from Kansas City, Mo., for an expected 60th anniversary celebration, led to a hurry-up call for a get-together. The intense heat at the time discouraged any attempt to attend the graduation exercises and a noonday lunch at the City Club was substituted. Holbrook and Chase, with their wives, Read with his daughter, Mrs. Brown, and Bouvé were all that could be rounded up, Doane, the only other near-by member of the class, not having recovered from a recent illness. Stevens wrote from Ventnor, N. J., expressing regret at his inability to be present and detailing his varied activities in the years past, from which he had retired, and ending with the announcement that in August, "as my wife and I approach our 55th year of married life, we sail for Italy, to revisit scenes that are endeared to us. We are nearly 80 years of age and friendly comrades, which is saying much." Long life to them.

Wilder wrote from Cincinnati: "My best wishes for you old men who confess to being 80 years old. My 81st anniversary occurred nearly two months ago. I wonder if there are yet alive any of the '74 men who threw the wet paper and sponges on the '73 men who were having a class picture taken on the steps of Rogers building? That is my earliest recollection of '74, as at that time I was a member of '73 and got some of the shower from the upper floor." Read retired some two years ago from a service of 33 years as Clerk and Treasurer of the Bostonian Society and is now, presumably, living a life of quiet and ease at Wellesley Hills, seldom braving the terrors of metropolitan visits. Doane is still a bachelor, supposedly content with his lot, and identified with banking interests, and hardware at Middleboro. Bouvé is still to be found at his old office in Boston, engaged in the practice of law, "at times," as he says. A notice of the meeting sent to Knight brought no response and it was learned later that he had passed on last March. Any account of the writer's many and varied activities will have to appear in a later issue. — JOHN C. CHASE, Secretary, 9 Ashburton Place, Boston, Mass.

1877

Frederic Parker Spalding died at Dracut, Mass., on Monday, October 29, 1934. He was born December 20, 1853, at Lowell, Mass., son of Harriet Maria Kimball and Frederick Parker. After his mother's second marriage he and his elder brother were adopted by his father, Sidney Spalding, and given his name.

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1877 Continued

He was educated in the public schools of Lowell and was graduated from the high school at the age of 15, spent one year at Williston Seminary, one or two years at Bryant and Stratton in Boston, and one year in a national bank, before entering the M.I.T., where he pursued the course in Civil Engineering. He entered the Institute in the Class of 1877, taking a five-year course, and was graduated in 1878. After graduation he spent a while in bookkeeping, and in 1879 was on United States work in the improvement of the Missouri River at Omaha, Neb.

From August, 1880, to retirement in 1924, he was in the engineering service of the City of Boston, for years in the City Engineer's office until 1911, when that and other major city departments were consolidated as the Department of Public Works. Thereafter he was one of the leading engineers of the Bridge and Ferry Division of the latter department, specializing in the construction and maintenance of bridges and water-front structures, until failing eyesight compelled his abandonment of active work. In the earlier years of his city service he was engaged in the building of a considerable number of pile trestle bridges provided with wooden bascule draw spans which he developed with a high degree of usefulness and efficiency. This work led him to the building also of municipal wharves, ferry landings and slips, bulkheads, retaining walls, and pile and masonry foundations in which he gained a broad experience until in his later life he came to be recognized as a leading expert in this section of the country in this field of bridge and water-front construction.

During the World War, when the Boston Army Supply Base was projected, Fay, Spofford and Thorndike of Boston, who were in charge of this undertaking as consulting engineers to the United States War Department, requested the city authorities to grant Mr. Spalding a leave of absence in order that his special knowledge of water-front structures could be utilized in this war work. He and Mr. Fay of that engineering firm had previously been associates for some 20 years in the city's engineering service. The leave requested was granted and for 11 months Mr. Spalding was engaged in the design of the wharf structures (aggregating over a mile in length and involving the use of some 35,000 piles) of the Army Base, which is one of the largest water-front terminals of the country.

Fred Spalding, as he was familiarly known to his associates, was not alone an able engineer and a specialist in the particular field which became his life work. More than that, his genial, equitable, and attractive personality impressed all with whom he came in contact and won for him a wide circle of enduring friends.

On June 20, 1881, Mr. Spalding married Alice French of Lowell, Mass., who survives him. By this marriage there were five children, one of whom, Mrs. Eliza-

beth Spalding Caffrey, died in 1918. The four living are Mrs. Harriet L. Lake, Miss Alice Dean Spalding, Frederic French Spalding of Fort Bragg, Calif., and Captain Donald Parker Spalding of the United States Army. There are also five grandchildren and a sister, Mrs. C. P. Nichols of Lowell, Mass., who survive.

Mr. Spalding was much interested in several branches of natural science, spent all his leisure for many years in the study of birds, and became an authority on New England shore and water birds. He was a charter member of the Essex County Ornithological Club, a member of the Micological Society of Boston, and a member of the Boston Society of Civil Engineers. In his youth he joined the masonic order and became a Knight Templar and a 32nd degree Mason in the Massachusetts Consistory of which he was a life member.

Mr. Spalding was a resident of Lowell during his long life with the exception of the last six years when he was a resident of Wilton, N. H. — BELVIN T. WILLISTON, *Secretary*, 3 Monmouth Street, Somerville, Mass.

1884

The Secretary regrets to report the death of Hammett on September 22 at his summer home in Grafton, N. Y., after a long illness. Hiram G. Hammett was born in Auburn, Maine, in 1860, prepared for the Institute in the Somerville High School, and was with us four years in Mechanical Engineering. He became a draftsman with the Consolidated Valve Company of Boston, then Assistant Electrician of the Boston and Albany Railroad, and in 1885 Superintendent of the Railway Supply Business of F. W. Richardson of Troy, N. Y. On Mr. Richardson's death in 1886 he became manager, and in 1887 married Mrs. Richardson. He founded the Hammett Machine Works, which manufactured locomotive specialties and machinery, and his products are in use all over the world.

Mr. Hammett had a wide interest in civic affairs and served on the Harbor and Dock Commission and on the temporary Emergency Relief Administration. He was Vice-President of the Union National Bank and a member of many clubs and professional societies. A daughter, Miss Grace Hammett of Troy, and a brother, John C. Hammett, of Cedar Rapids, Mich., survive.

Mayor Burns issued the following statement:

"In the death of Hiram G. Hammett, Troy loses a real citizen. I have known him many years and knew that whatever the occasion, he could be counted upon to give unstintingly of his time, his expert knowledge, and his untiring efforts to help the city. He never sought the limelight. When his own personal affairs were concerned he kept in the background, but when the city's affairs were at stake, he loyally took the foreground, and worked unceasingly to obtain whatever it was that was being sought for the city. This made him a citizen whose loss will be deeply felt. He was a man such as every

city needs and none can afford to lose." The class will remember him as an earnest, lovable, and companionable fellow.

The Secretary is indebted to the *Troy Times* for some of the facts stated above. — A. H. GILL, *Secretary*, Room 4-053, M.I.T., Cambridge, Mass.

1888

We quote the following from the *Journal of the American Medical Association* of October 20, 1934, in regard to the award of the Sedgwick Memorial Medal to our classmate, Dr. Edwin O. Jordan, who has rendered most distinguished service as teacher, author, and editor in the science of hygiene and bacteriology during the 46 years since he graduated from the Institute. "Edwin O. Jordan, Ph.D., formerly Chairman of the Department of Hygiene and Bacteriology, University of Chicago, was awarded the Sedgwick Memorial Medal for distinguished service in public health at the annual meeting of the American Public Health Association in Pasadena in September. Although he retired officially from the university in 1933, after 41 years' service, Dr. Jordan has been offering graduate courses and has continued his research in the department of hygiene and bacteriology. He had been chairman of the department since it was set up in 1914, and professor since 1907. He is editor of the *Journal of Preventive Medicine* and joint editor of the *Journal of Infectious Diseases*. He is a former President of the Society of American Bacteriologists and the American Epidemiological Society. He is the author of many volumes on bacteriology and related subjects, and co-author of a biography of W. T. Sedgwick, for whom the medal is named."

A recent issue of the *Boston Transcript* contains the following regarding Harry Bigelow who died in 1918: "The valuable architectural library of the late Henry Forbes Bigelow, distinguished Boston architect and for many years senior member of the firm of Bigelow and Wadsworth, has been presented to the School of Architecture of the M.I.T. The collection includes more than 500 volumes, many of them of unusual value. Among them are a number of books dealing with various fine arts, as well as some biographies of early craftsmen. — An important collection of Italian and English furniture, comprising in addition Oriental rugs, silver and Sheffield plate, Lowestoft and other china, were sold recently by Mrs. Bigelow."

After 46 years of silence we have at last heard from one of our old "tug-of-war" heroes, Harold Gross, who with Russell Clement '88, Frank Pierce '89, and Paul Tracy '90 gave Harvard its only defeat by Technology in a major athletic sport (at that time) in the meet between Technology and Harvard on March 5, 1887. Gross' letter is so illuminating and so typical of him as we remember him that we give it in full for the benefit of his many friends in the class who have heard nothing from him in nearly half a century. From Eureka, Calif.: "Glad to hear from you. I have lost trace of all the

1888 Continued

boys. I am out here as far as I can get, the most westerly city in U. S. All is well with me, hale and hearty, working at my profession daily and taking a day off now and then, in season, to hunt and fish. Killed my two deer this past fall and have now started on the ducks and after November 1 on the quail. The world has been kind to me. I am comfortably fixed. Married in 1892 and have three grown children and one grandchild. All of us have kept out of jail so far. After leaving Tech I entered Harvard Medical, following with internships at Boston Children's Hospital and Boston City Hospital. Came home to Eureka in 1893, have been practicing here ever since. Was in New York in 1913 for several months taking post-graduate work and since then have specialized in eye, ear, nose, and throat. Haven't done anything wonderful but have lots of friends and get a great kick out of life. How are you all? You seem to be at the other extreme of the U. S. Give my regards to Ben Buttolph. I remember him well. I do not think I have seen one of my class since I came out here. I often think of the good times we had and some of our griefs, too. On account of my profession, I am like a goat in a flock of sheep, among Tech men. I have some old pictures of the tug-of-war team and of the fraternity boys that I look at once in a while. Best regards to those who are left."

Our Staff Correspondent, Ben Buttolph of Providence, writes that he has just received word that Dr. Victor Ray died on October 26 at his home in Cincinnati suddenly of heart attack. Victor and his brother, John S. G. B., entered the Institute with us but later joined '89, under the notes of which class a more extended notice will be given in the February issue of *The Review*.

As usual Ned Webster won first prize for his beautiful chrysanthemum exhibit in the autumn flower show of the Massachusetts Horticultural Society.

Your Secretary has removed from Chebeague Island, Maine, to the address below and invites all classmates to call. — BERTRAND R. T. COLLINS, *Secretary*, 52 Garden Street, Cambridge, Mass.

1892

Our Class Secretary, John Hall, wrote Hutchinson on October 30 asking if he would get something for the January issue of *The Review*, being unable himself to devote time to it on account of the serious illness of his sister, 80 years of age, the widow of Professor William Ripley Nichols, former Professor of Chemistry at M.I.T., also a member of the Class of '68. Later news from Hall is to the effect that his sister is considerably better and comfortable. Twenty-one letters were sent out from a selected list, and ten replies have been received.

Severance Burrage has given several illustrated addresses before County Medical Societies and other organizations in Colorado on "Microbial Finger Prints; Their Relation to Respiratory Infections." He has been elected member of the Board of Trustees of the Unitarian Church in Denver; has been within the last year

Vice-President and member of Board of Directors of the Denver Rotary Club; has been active in the Denver University Civic Theater, taking part in one of their last performances, a revival of "East Lynne." He is still holding the position of Associate Professor of Bacteriology and Public Health in the University of Colorado School of Medicine, from which position he may be retired in two years on account of age. Burrage lost a daughter (Frances) by sudden death last May, following an emergency abdominal operation. She was a graduate of Carnegie Tech in 1929 and was associated with Wilfred, the inventor of the "Clavilux" studios in New York City.

Harry Carlson is chairman of the Fire Prevention Committee of the Boston Chamber of Commerce, and in connection with the State Department of Vocational Education, has started a school for watchmen with the idea of training them so that fire losses in Boston will be reduced. They have some 500 watchmen in their school and the men seem very enthusiastic about the work.

Sumner B. Ely, Professor of Power Engineering at Carnegie Institute of Technology, has had for the last two years the Power, Heating and Lighting of the Carnegie Institute and its interests have been under his care, which has taken a great deal of time.

Mrs. Holman (Mary Lovering) employs her time as a genealogist and hoped to have another book come out, but the depression made that impossible until spring. The last year was pretty much used up in looking after her daughter, Winifred, who was very ill but who during the past year published a Remick Genealogy. In August they went to England for a short stay, returning in September.

A. P. Mathews, Professor of Biochemistry, University of Cincinnati, writes as follows: "I shall greatly enjoy having news of other members of the class. I suppose they feel as I do. Their lives pass rapidly, quietly, and busily. They get through each day, meeting the problems and doing the tasks that present themselves, and there seems little to chronicle in the lives of any one which the others have not also experienced. But if we can get through life without shipwreck; with our debts paid, whether of money or of gratitude; and leaving an unblemished name for our children and grandchildren, and something done for our neighbors; that is at least something to be proud of in these days of storm. And there are few Tech men who fail in these particulars.

"The last year has been a year of great anxiety and stress for Mrs. Mathews and me. A year ago last July our only daughter, Mrs. Koller, and our two grandchildren, were stricken with infantile paralysis at our summer home in Woods Hole, Mass. The epidemic was not recognized as such. It was called intestinal grippé during June and July. The grandchildren had the disease lightly and with no paralysis, but our daughter was paralyzed from the sixth cranial nerve to her toes, only the phrenic nerve escaping, so

that breathing, although weak, continued. She could not move a muscle of the arms, legs, and trunk except the diaphragm. She was pregnant about five months at the time. Her escape from immediate death was of the narrowest. We gave her a new treatment suggested by our new knowledge of vitamins, heavy doses of vitamins B₁ and B₂. And whether for this, or for some other reason, after some weeks, the paralysis began to remit as the motor nerves regenerated throughout her body. She has now made practically a complete recovery. She is able to walk without support, and the abdominal muscles are now coming back and the intercostals. Her arms are normal; and I think in another year she will be entirely recovered. In addition, under the wise and skillful care of Dr. Irving of the Boston Lying-In Hospital, she was safely delivered of a strong, intelligent, and in every way normal little girl about ten months ago. The case is a very unusual one. I suggest that should any members of the class be so unfortunate as to be in the midst of an epidemic of intestinal grippé, so called, that they be on their guard; for this disease is, I feel sure, the mild and unrecognized form of infantile paralysis. I believe it was communicated in my daughter's case through milk. And should their children or grandchildren get the disease, let them try the effect of very heavy doses of vitamin B. Our anxieties are over. My wife, after an absence of over a year taking care of the grandchildren, is now back with me; and we have one of the finest little grandchildren, in addition to our other two, to bring us happiness.

"As for myself, there is little to write except that I believe I know what gravitation is. I believe it to be neutral magnetism set up by the motion of all matter in time, such matter moving abreast, in the same direction, from past to future, in parallel paths, and at the same velocity. This velocity is 7.465×10^7 cms/sec. This is the velocity of the flow of time. And this year in the spring I published a pamphlet of 100 pages dealing with this matter, entitled, 'Gravitation, Space-Time and Matter'. Should any members of the class like to see it, I would be glad to send them copies. For the rest, I keep busy teaching biochemistry and directing the research work of about a dozen graduate students, and doing a few other odd jobs as a consultant for various firms who make use of biochemical knowledge in manufacturing their products. But my main job, and the one I like best, is being a grandfather."

Maynard writes that he was married a year ago last September to a Miss Beatrice Constance Turner of Brookline, Mass., and "bought and resides" at 50 Temple Street, Arlington, Mass., where all classmates will be made welcome (Telephone: Arlington 2447-W). He is credited with originating in 1912 the idea of the popular "Snow Train," side-tracked during the War, but now so much patronized.

Professor H. R. Moody, Director of Chemical Laboratories, College of the City of New York, writes that he is carry-

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1892 Continued

ing on just as usual. "The chemistry department is limited only by the cubic space between tremendously thick stone walls, which if they were only of rubber I am sure would bulge with the number of students who work within them. We have nearly 5,000 students per year taking chemistry and it takes a staff of 60 people to look after them. The department is really quite a college in itself. I have not been abroad for three summers, and unless conditions become more settled and exchange more normal, I doubt if I shall take up again my formerly frequent visits to Europe. Beyond trips to not so very distant cities to attend conventions of the American Chemical Society and the American Institute of Chemical Engineers, my travel is confined to the space enclosed between Portland, Maine, where my summer home is, and Vienna, Va., where we have now established our main home. In a way, I commute between New York and Washington, for Mrs. Moody stays down there a good deal of the time except in mid-winter, and I try to go down every week-end. This year I was in Maine for only two weeks, although some of the family were there and stayed in Vienna all the rest of the season as I was connected with the NRA, having the position of Assistant Deputy Administrator in the Pulp and Paper Section. Although I resigned from that position in time to come to college before it opened, yet I am still connected with the NRA in the capacity of administrative member here in New York."

Professor C. F. Park has retired from the M.I.T. Faculty but is retaining his position as Director of the Lowell Institute School.

F. C. Shepherd writes that he has "been busy this year in connection with research into the activities of marine borers in New England waters. While you may not be aware of same, during the last few years there has been a sudden heavy development in the activity of marine borers along the New England coast, particularly in Boston Harbor and to the North, with resultant heavy destruction of marine piling in salt waters. In order to develop information, the New England railroads, together with the State of Massachusetts and the State of New Hampshire, combined this year and appointed a Committee, of which I am Chairman, to carry on a careful investigation and study and this has been very interesting work. Information has been obtained as to the rapid destruction going on and we are attempting to develop enough information so that protection can be obtained in the future." In this connection, Shepherd presented a paper in September before the American Society of Port Authorities in New York City where he had the pleasure of meeting Scott Parrish, who was a delegate to the Convention, representing the Port Board of Virginia, of which he is Secretary.

T. H. Skinner writes as follows: "I have been in Florida since the fall of 1925 and have lived in Tarpon Springs, Dunedin, and Clearwater. I am practicing my profession under the name of The

Architectural Studios and have been able to keep going through the bursting of the boom bubble and the prolonged general depression Florida has had, a longer stretch than any other part of the country. It looks as though this winter would bring a renewed interest, and possibly some increase in population, which in the end will increase building, so that we anticipate more business in the next period than we have had in the past. I was fortunate in being selected by the Secretary of the Treasury, under Mr. Hoover, to be architect for a Federal building in Clearwater, which was finished a year ago and is considered by the traveled in this town as a very good example of Mediterranean architecture, adapted to our particular location. The walls are of Florida rock, which is quarried below tide-water, 50 or 60 miles below Miami. It is a conglomeration of coral, shell, and sand, producing very beautiful texture, resembling a little the travertine of Rome. The ornamental frieze is of glazed tile, terra cotta, and cast stone. These, with the green tile roof and cream-colored walls, are truly an interesting combination in our brilliant sunshine. I have been an architect of a number of nice residences, and a number of inconspicuous ones. My children are away: one daughter, married, in Los Angeles; another daughter, married, in Oneida, N. Y.; my boy, in business in New York City, a graduate from Duke University. We have two grandchildren. Mrs. Skinner and I are both in better health than we have ever been before and look forward to a happy old age here in Florida. We believe that although Ponce de Leon didn't find his Fountain of Youth, residence in Florida is productive of results which he sought."

Ralph Sweetser announces that he is "one of the incorporators of the Clean Air Institute, Inc., which has been organized under a charter of the State of New York, to conduct studies and experiments, render technical and engineering service, supervise and carry on publicity campaigns, and furnish and spread information as to the methods and means of suppressing air pollution and promoting air cleanliness and purity, especially in cities and localities of large industrial activity."

We regret to record deaths which have recently occurred, as follows: Charles M. Burnham, Watham Watch Company, died July 5, 1932; Anna Miller Harvey, wife of Fred Harvey, died October 29, 1934, at Galt, Calif.

Members of the class are invited to send news for the March issue of *The Review* to W. Spencer Hutchinson, M.I.T., Cambridge, Mass., acting for JOHN W. HALL, Secretary, 8 Hillside Street, Roxbury, Mass.

1895

The New York contingent of the Class of '95 held an interesting luncheon at the St. Moritz Hotel, in New York City, on October 26. A. L. Canfield, Fred Cutter, Ben Donham, John H. Gardiner, Ed Huxley, Johnny Moore, Richard Sheridan, Gerard Swope, John Wolfe, Sr., and John Wolfe, Jr., were present.

Johnny Moore had a special message to deliver covering some of his interesting experiences with adjusting NIRA problems. For some reason or other John became confused as to the place where the luncheon was held and arrived just in time to enjoy the *demi-tasse*. We will try to circulate John's speech "under separate cover."

Al Sloan has written an interesting letter to his employees stressing the mutual importance of continued harmonious relations between labor and management. It says in part: "We have got to make products which the public will buy and we can do it only by all working together with that idea in mind. The buyers of our products are our real bosses. They are the ones who provide the money for the wages of every one of us. We must satisfy them or lose our jobs."

"General Motors has been able to grow and provide more jobs only because we have made products of good quality at satisfactory prices. This has been possible because General Motors' employees and management have worked together. The only way we can keep on satisfying the public is by continuing to work together, with a common purpose; namely, the purpose of maintaining the quality of our products and keeping their prices reasonable." Al has the right idea; we agree with him.

The Quest and Question Club of Winthrop, Mass., has planned to present to the Winthrop High School a memorial cup to Harry Church Whorf, a former townsman of Winthrop, an artist, and author of pageants. A facsimile of the cup will be given to the member of each graduating class who does outstanding work in the fine arts department of the school. This memorial is most fitting as a remembrance of the unsparing contributions of time and effort Harry Whorf made to the arts.

We quote from a letter from John H. Gregory to your Secretary. "Once again the grim reaper has taken one of our classmates. I refer to George E. Howe, Course I. I am enclosing two clippings from the *Elkhart Truth* of October 30, 1934, relative to Mr. Howe's death. George was an intimate friend of mine. Not only did we sit side by side for our four years at M.I.T. but we were together on both the Metropolitan Sewerage and Water Works of Massachusetts. Later we were together on the commission on Additional Water Supply of New York City, and then, for five years, from 1904 to 1909, he was with me in Columbus, Ohio. I have lost a life-long friend, one whom I first met in 1891, 43 years ago this fall."

George E. Howe died October 29, 1934. Born in Waltham, Mass., he was graduated from M.I.T. with the Class of 1895. On December 18, 1905, he was married to Alice M. Jennings in Chicago. Since 1911 he had been a member of the firm of Lyon and Greenleaf, Ligonier, Ind., making his home in Elkhart. His social and civic connections constituted service and membership in the Rotary Club, Boy Scouts, Community Chest,

1895 Continued

Elkhart General Hospital, Masonic orders, and the American Society of Civil Engineers. He is survived by his wife and a brother, W. S. Howe, of Greenfield, Mass.

May the New Year be a happy and prosperous one and bring us together at our reunion next June. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

We left the Fullers on the way to Bogota, combating the difficulties of a one-way road combined with the results of floods and landslides. A lot of cars and trucks had broken down on the road because of the strain from the floods, and finally their car stopped, but fortunately their driver was a good mechanic, and he was able to patch things up so that they went ahead and finally crossed the pass at about 9,000 feet altitude and dropped down to the great, flat, grassy plateau on which the city of Bogota is located at 8,650 feet, where they arrived at dusk. This is a fine city with a good hotel, and only 20 miles away by automobile is the splendid Tequendama Falls, nearly three times as high as Niagara. It is even more difficult to get out of the country than it is to get in. They spent most of an afternoon at the National Police Headquarters being checked up as thoroughly as any criminal would be checked in the United States. Eventually, they were able to satisfy the officials that they were not desperate characters and on the last day of the year they took a train at Bogota to go down the face of the Eastern Andes through scenery similar to that they had climbed by automobile a few days previously. The train wound back and forth, running nearly 100 miles to accomplish an actual straight-line distance of about 50 miles with a vertical descent of over a mile and a half, landing them back again in the tropical heat of the Magdalena river. Going on, they climbed about 4,000 feet to Ibaque and before them were the Central Andes, averaging 13,000 feet in altitude. They climbed these from Ibaque by automobile over a tortuous road, up tremendous ravines, to 11,000 feet at the top of the pass. At one point a landslide was met which had stopped traffic, but it was finally cleared away by the combined efforts of truckmen and chauffeurs. This delayed them so that they missed their train which runs daily, and they spent the night in the little town of Armenia, 5,000 feet above the sea level. Thence they took a train and dropped down 2,000 feet into the Cauca valley, the garden spot of Colombia. They stopped two days at Cali, a city with excellent hotel and numerous fine buildings. The crossing of the third or Western range of the Andes, less high and rocky, but still averaging 8,500 feet in elevation, was made by train, which first climbed up 3,000 feet on the bare eastern hillsides and then ran through mile-high coffee plantations, and finally plunged through the last range in a canyon sometimes barely ten

feet wide at the bottom, but several thousand feet deep. As they approached the Pacific Coast, the dry slopes gave place to dense jungles enveloped in clouds and drenched with rain most of the year. Their point of departure was Buenaventura on the Pacific, where certain health formalities had to be gone through again, before a passport visa and health certificate could be issued which would permit the buying of a ticket to leave the country. Medical examination, however, was not very difficult, and after the medical officer had held the stethoscope to their collar bone, shoulder blades or equally unlikely spots, they were pronounced free from the whole category of medical diseases. Their parting experience in Colombia was the payment of an \$8.00 tax on a \$30.00 ticket to Panama, whence they returned to New York.

Newspapers more or less generally featured the birthday of Will Coolidge, which occurred October 23, 1934, being his 61st.

Joe Knight dropped in on the Secretary on election day, November 6, with the announcement that he could not stop long because he had to vote before the polls closed. Joe still makes his office headquarters at 101 Tremont Street, Boston, but he has leased his house in Dedham and the family has moved to the ancestral abode in Pittsfield, Mass., so that Joe will commute more or less. The next day Welles Mortimer Partridge appeared in clerical garb, but minus his patriarchal whiskers which had featured photographs of him that appeared in some of the papers in the West. Partridge showed a considerable increase in avoirdupois, and it was evident that the 17,000-mile trip through the West had not been accompanied by starvation. He was around Boston only temporarily, and announced his intentions of starting out again very soon to continue his traveling mission and perhaps incidentally to get away from New England before the rigors of winter set in, although he did not specifically mention this last part. He wanted to know about various classmates and sent his best wishes to all.

The Secretary had the pleasure of attending a meeting of the New Hampshire Technology Club in Manchester on November 9, and found Sam Hunt among those present. Unfortunately, there was not an opportunity to chat with Sam to any great extent, but Sam is carrying on as one of the solid citizens of Manchester. His principal job is looking after his father's estate, but Sam would not be happy if he was not doing all sorts of other things for civic betterment and public welfare.

Report has been received of the death of Rear Admiral Charles Morris on October 13, at Stamford, Conn. Further details will appear in the next issue of The Review.

A letter from Minor S. Jameson in Washington says that his daughter's wedding, which was reported in a previous issue, was a most picturesque event in the old town of Bennington, Vt. His son Minor, Jr., was in line for a

fairly good job in Washington but when Jameson wrote the job had not materialized.

Mark Allen reports that he has been running back and forth as a commuter from Detroit to New York. First he had his trip East with his boy. Later on he came East to meet Mrs. Allen on her return from Europe. The last trip was to be with his daughter who had presented him with a grandson by the name of Mark Allen Hession. Mark was correspondingly elated as a result of his elevation to the grandfather class and anyone of the class who calls on him in Detroit can count on receiving a good cigar.

Charlie Brown, proprietor of East Bay Lodge in Osterville, Mass., assures the Secretary that he is holding definite reservations for the Class of '96 to observe their Fortieth Anniversary in the form of a reunion with him June 4 to 7, 1936. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1900

Our first class get-together this fall was a success, as some 21 sat down to a turkey dinner in the Faculty room. The following were present: Russell, Charlie Smith, Lawley, Fitch, Jackson, Bowditch, Richardson, Patch, Ziegler, Walworth, Davis, Wedlock, Ingalls, Stearns, Allen, Leary, Bugbee, Crowell, Westcoat, and the Secretary. Our guest of honor was Horace Ford, who is always pleased to be included in the gatherings of this Class. Charlie Smith explained to us his plans in regard to the inauguration of an Alumni Day this year, after which there was an informal discussion of plans for the Thirty-Fifth Reunion of the Class next June. Consensus of opinion was that East Bay Lodge in Osterville would be the best place and that May 31, Friday, through Sunday, June 2, would be the best time. A committee was appointed consisting of Charlie Smith, Bowditch, Allen, Fitch, Draper, Ziegler, and the Secretary to work out plans and report at a later Class dinner to be held some time in January. Whatever plans are made, it will be a gala event and all are urged to set aside these dates.

Letters received from out-of-town classmates unable to attend the dinner, but hoping to be present at the reunion, included: Merrill, Gibbs, Worden, Johnson, Hapgood, Perry, Hart, Jouett, Briggs, Gardner, Mead, McCrudden, and Sperry.

An interesting letter from Hughes follows: "For several years I have been and still am at work on a book on engineering materials that will be useful to students, designers, and engineers in selecting materials for machines and for engineering structures. There are chapters on: terms and definitions, testing machines, selecting materials, iron (gray, malleable, wrought, alloy), carbon and alloy steels, non-ferrous metals and alloys (copper, tin, lead, zinc), non-metallic (phenols, rubber, and so on). The manuscript is over four inches thick.

1900 Continued

"Perhaps members of the Class are not aware of the rapid strides that have been made in developing materials. For example, when we were students at M.I.T., aluminum was considered a semi-precious metal, and articles made of it were considered novelties. Now, thousands of tons are used yearly for all kinds of purposes; viz., electric cables, castings, forgings, and even for paint and ink.

"Aluminum is only one of the many materials that by development has been brought into daily use. For instance, iron has been found to be an excellent conductor of electricity; phenol compounds are used for quiet-running gears; cemented carbide tools for certain machines have replaced steels, and so on.

"The book on engineering materials mentioned above would fit in courses on civil, mechanical, mining, electrical, and chemical engineering. I should appreciate members of the class offering suggestions in regard to the use of the book, at least for reference purposes at M.I.T.

"It is believed that at M.I.T. the importance of students being well grounded in materials should be strongly brought out. Men so grounded are better equipped to obtain positions as research engineers, designers, sales engineers, and also executive positions — for all signs point toward increased activity in the development of new and improved materials." — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1901

Dr. Allen Winter Rowe, your secretary for 13 years, died December 6 after a month's illness. In the front section of *The Review* you will find further material about Dr. Rowe and the tributes which have been paid to him.

To the secretaryship of the class, as to everything else he undertook, he brought a lambent wit, a great gift of expression, and an intense and intelligent loyalty. Now that he has gone, thousands of *Review* readers (for his 1901 notes were read by men of all classes) will feel that one of *The Review's* gayest and most charming features will be absent.

His host of friends and classmates join *The Review* Editors in paying tribute to a man beloved and admired, one of the Institute's most distinguished Alumni. He left a rich heritage for all. — THE REVIEW EDITORS.

1902

William H. Williston died in his sleep on the seventh of last June at his rooms in the Hotel Holland in New York. Bill was born in Somerville, Mass., and had made his home in that city all his life. After graduating he went at once to work for the Hancock Inspirator Company in Boston, with which firm his father, Belvin T. Williston '77, had long been associated. He started as a draughtsman and rose steadily till he became works manager. In the several consolidations through which his firm has been merged with others he has gone forward steadily and for several years past had been Vice-

President (in charge of sales) of the Ashcroft Manufacturing Company. Williston's business kept him traveling most of the time and prevented his attending any gathering of the class for many years. Classmates reported meeting him here or there from time to time, the last being when Patch and Trowbridge ran across him on a B. & M. express a few months before his death. The funeral was held from his home in Somerville. He is survived by his wife, Mrs. Elva Shattuck Williston, whom he married in 1906, a son, Belvin F. Williston, also a graduate of the Institute, '30, and a daughter, Mildred. His parents both survive him. Williston's death breaks what was probably the only sequence of three generations of Technology graduates.

Word has recently reached the Secretary of the deaths of two men who were members of our class for a part of our years at Technology. Alfred H. Ricketts, V, and William L. George, III, both of whom died some years ago.

The following changes of address have come to hand: George T. Paraschos, Box 137, Plymouth, Mass.; Herbert F. Daly, Long Beach, Wash.; Bernard G. Elliot, Woods Hole, Mass.; John A. Hutchinson, 1250 Maple Street, Bethlehem, Pa.; Lester C. Hammond, 208 Kahl Building, Davenport, Iowa; Leroy E. Kern, 220 High Street, Macon, Ga.; Major Charles E. McCarthy, Headquarters Sacramento District, CCC, 7 and K Streets, Sacramento, Calif.; Donald M. Belcher, Chapman Valve Company, Indian Orchard, Mass.; William N. Brown, Box 254, Closter, N. Y.; Charles W. Ewart, 202 South Highland Avenue, Los Angeles, Calif.; Archibald Gardner, River Road, Maumee, Ohio; Franklin T. Root, 32 Washington Square West, New York, N. Y. — Ralph Franklin is the head of Albert B. Franklin, Inc., 38 Chauncy Street, Boston. His company has done the engineering for several PWA projects in Massachusetts and were the architects and engineers for a large warehouse for the State Colony at Gardner, Mass. — Adrian Sawyer was recently elected Secretary-Treasurer of the Massachusetts Golf Association. Sawyer has long been an active member of the Brae Burn Country Club of Newton. — FREDERICK H. HUNTER, *Secretary*, Box 11, West Roxbury, Mass. BURTON G. PHILBRICK, *Assistant Secretary*, 246 Stuart Street, Boston, Mass.

1904

As the main item of class notes for this issue, the Secretary extends to all his classmates his very best wishes for the Holiday Season and hopes that no matter how good the past year may have been the coming one will be better.

The only other item of interest was submitted by Professor Locke, that faithful 1904 correspondent. W. P. Schumacher, Assistant General Manager of the Mexican mining department of the American Smelting and Refining Company, with office in the Mills Building, El Paso, Texas, took a vacation during the summer and with Mrs. Schumacher

made a trip on the Grace liner *Santa Elena* by way of the Panama Canal, stopping in Mexico, Colombia, Canal Zone, and Havana. They ended up in New York and his old home town of Boston.

In closing the notes the Secretary expresses the hopes that this issue may not be a criterion for the balance of the year with reference to the size of the 1904 Class Notes. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, 8 Rosemary Street, Chevy Chase, Md.

1905

A few years ago we reported a trip to Florida where several members of the class were seen. That was a fiction for which we apologized. The present story is actually being written in Bermuda.

A very busy summer and fall and a bad cold in October furnished the excuse for your Secretary's sailing with his wife on October 31 on the *Queen of Bermuda* for the "Isles of Rest." You may remember that we have sailed to Bermuda before, on a small yacht. Sailing on *The Queen* is different — luxury versus labor.

We are staying with Bermudian friends through whom we have been able to do things the regular tourist would miss. Our bicycle muscles are well developed; we now mount with the nonchalance of natives and "cycle" where we go. For our benefit there have been many warm, sunny days. Can anyone name a better bathing place than Coral Beach, with the thermometer 80°? When better beaches are built Bermuda will build them.

We have attended parliament, church services at "Prospect" with a battalion of the Manchester Regiment which has a corking band, Armistice Day services at the Cenotaph, the arrival of the new admiral commanding the American and West Indies Squadron. We had our first experience with Rugby, a great game, no doubt, but many features of which we did not understand at all.

Certainly you would enjoy the native fruits such as papaw, bananas (picked ripe from the tree), avocado, mango, christophene, and so on. But you would probably have to take your wives along to get the most out of the hibiscus, bougainvillea, passion flower, poinsettia, oleander, crotons, frangipanni, and many others.

Class affairs were not entirely forgotten, for we again tried to locate Edgar Meyer, calling at the office of Darrell and Meyer and talking with Edgar's brother, His Worship the Mayor of St. George's, from whom we got his address: 195 North Euclid Avenue, Pasadena, Calif. He has been in California for some years in the brokerage business. There is some talk of his returning to Bermuda.

In Trimmingham's we renewed acquaintance with ship friends from Plymouth. Mention of the name of Strickland started them telling about the many things Sid has done for their city. The restoration of Summer Street seems to be held up but he is responsible for other similar work now going on.

1905 Continued

We have heard of Tech men of other classes but that is all of '05. We left home in a rush and forgot the class notes folder. Whatever may be therein will appear next month. — ROSWELL DAVIS, Secretary, "Newstead," Paget West, Bermuda, but before this is read, Wesleyan Station, Middletown, Conn. SIDNEY T. STRICKLAND, Assistant Secretary, 20 Newbury Street, Boston, Mass.

1906

The Boston *Traveler* of September 28 devoted a column to our classmate, Eleanor Manning (Mrs. Johnson O'Connor). With the scarcity of notes it is a great temptation to reproduce the whole article. However, in deference to Mrs. O'Connor and The Review editors, we will reproduce below a few of the most interesting features: "In the *Simmons Review* of April, 1934, Eleanor Manning has this to say: 'Housing, accurately speaking, is a concern of city planning, and it is with the housing of low-wage earners that the government is engaged. Women find themselves very much at home with every phase of housing for the whole vertical cross section of society, and they should be grateful to the turn in events which opens up work so much to their taste, work in which they are expected to perform creditably and in which they have often achieved distinction.'

"How about openings for women in architects' offices? Can women get the necessary practical experience before opening offices for themselves?' she was asked. 'In ordinary times, yes,' she replied. 'In this fifth year of the depression, no. New York has always been more open-minded than Boston about hiring women draftsmen, and the West is, as one might suppose, unaware that discrimination, because of sex, is either wise or expedient. One usually starts a practice by experimenting on one's relatives and friends. A young draftsman in an office may get a chance to alter a neighbor's house or to plan a summer cottage for a member of her family, and gradually increased opportunities would bring added facility in design and knowledge of architectural pitfalls which make life so exciting and interesting. A clientele develops slowly. Perennial clients who come back every year or so with an addition or an alteration or a brand new house to build form the backbone of practice, pay the rent, and keep one out of the red.' 'It is interesting,' she went on, 'for a woman architect to develop a special field even in the general division of domestic architecture. The restoration of colonial houses has proved a prolific source of interest and income for many architects in the lean years.'

"Eleanor Manning O'Connor always knew she wanted to be an architect, from the age of eight on, and planned for it. Born in Lynn, she was graduated from the Lynn Classical high school and then entered M.I.T., from which she received her B.S. in architecture in 1906. She started in with Miss Lois Howe as a draftsman in 1907 and in 1913 was called back from Europe, where she went for a

year, upon notification of her being admitted into partnership with Miss Howe, and the firm became Lois L. Howe & Manning, and later, about 1925, Miss Mary Almy was admitted into the firm. Mrs. O'Connor is perhaps as well known by her maiden name, Eleanor Manning. She is a member of the Boston Altrusa Club, and of the Appalachian Mountain Club, and is a past president of the Boston College Club. Mr. and Mrs. O'Connor reside at 381 Beacon Street, Boston," and they have recently returned from a summer in Italy. Mr. O'Connor is professor of psychology in Stevens Institute, Hoboken, N. J., and also in M.I.T.

The October notes referred to K. E. Terry's election as President of the American Pulp and Paper Mill Superintendents Association. The Portland, Maine, Sunday *Telegram* of October 28 contained the following item: "Killey E. Terry of Cumberland Mills, President of the American Pulp and Paper Mill Superintendents Association, has returned from Ottawa, Ont., where he was one of the principal speakers at the annual meeting of the Northern New York Division which was held at the Chateau Laurier. Incidentally, Mr. Terry was awarded a fire blanket as the 'marathon trophy' which was presented to the member traveling the greatest distance to attend the convention."

Our New York correspondent, "C.F. W.W.," wrote early in October that he had received a letter from Stewart Coey who is now General Manager of the Cooling Tower Division of the Research Corporation, 405 Lexington Avenue, New York City. The corporation has taken over the manufacture and sale of the Coey Multi-Stage Cooling Tower. Incidentally, Stewart has a son who is now a sophomore at Amherst and who played end on the Amherst football team. I believe last year we had occasion to refer to his ability as member of the freshman football team and pointed out that last year's freshman team was outstanding. Events this year have borne out this theory, as the Amherst Varsity Team won the Little Three Championship, largely on account of the football ability of the sophomore members of the team. Classmates will also be interested to know that Charlie Wetterer's boy is now a member of the freshmen class at the Institute and played on the freshmen football team at the annual Field Day on October 26. If I recollect, the Field Day was won by 1937. However, other great classes have suffered the same unfortunate start.

With these two items regarding the younger generation, which your Secretary has obtained by reading the sporting page of the Boston papers, our news for the January issue is completed. As our esteemed contemporary *Time* so aptly remarks, "Names make news." We feel, therefore, it is legitimate to include items concerning the offspring of classmates.

These notes are being concocted late in November but even now it is too late to wish you a Merry Christmas and Happy New Year. It is hoped, however,

that you all enjoyed the holiday season and look forward to 1935 with all the optimism of confirmed "New Dealers." — J. W. KIDDER, Secretary, Room 1001, 50 Oliver Street, Boston, Mass. EDWARD B. ROWE, Assistant Secretary, 11 Cushing Road, Wellesley Hills, Mass.

1907

During the past two months we have written courteous, cordial, and personal letters to 15 members of the class from whom we have had no word for at least two years, enclosing information blanks and return, addressed envelopes, requesting that they write us so that our records might be up-to-date and so that we might have some news for The Review. We have received no reply from any of these, with the exception of Bob Taylor, of whom we wrote in the December Review, and Clarence Lamont, regarding whom we write below. On first thought, we were going to publish the names of these "non-coöperatives," but we realize that such procedure would be ungracious. Probably none of these men see The Review, anyway. We make this statement, not in a spirit of peevishness, but in order that you men who read these notes may know that your Secretary has tried to secure an abundance of material for this issue. We will hope for better results during the coming month, as we have recently mailed *second* letters to some of the original 15.

Again we have to record the death of an '07 man. Kenneth Moller died on November 10, 1934, in Milton, Mass. The following is taken from the Boston *Herald* of November 11: "Private funeral services will be held for Kenneth Moller, 50, President and Manager of the Textile Patent and Process Company, Inc., of 293 Congress Street, who died yesterday after a long illness at his home, 260 Center Street, Milton.

"Mr. Moller was born in Yonkers, N. Y., the son of William F. and Fannie Clark Moller. He prepared for college at Noble and Greenough and, following his graduation from Harvard in 1905, he studied for two years at the M.I.T., and remained there for two more years as instructor in mechanical engineering. In 1909 he became designer and engineer for the Fuel Oil Engine Company of Providence and the following year he was associated with the Jenckes Spinning Company of Pawtucket, becoming general superintendent and finally assistant treasurer.

"He assisted in the building of the Katama mills for William Whitman Company in Lawrence and in 1918 entered the service of the quartermaster corps in the position of chief of the manufacturing division, in charge of manufacturing into uniforms and service equipment all the cotton and woolen goods purchased by the army. Subsequently Mr. Moller became associated with Lockwood, Greene and Company in various capacities and on January 1, 1925, he became Vice-President of the Hunter Manufacturing and Commission Company of New York. After an association with Joseph

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1907 Continued

Bancroft and Sons Company of Wilmington, Del., he formed the Textile Patent and Process Company, Inc., early in 1929.

"Besides his mother, Mr. Moller leaves his widow and seven children, Mrs. Robert Sanderson, Mrs. Paul Brooks, Miss Nancy Moller, Kenneth Moller, Jr., Miss Cynthia Moller, J. Manton Bradley, and Miss Peggy Bradley, the latter two being stepchildren. There is also a brother, Irving C. Moller."

Although Kenneth had Harvard interests, he was one of the most coöperative, loyal, and interested members of our class and of the alumni of the Institute. He nearly always attended class dinners and reunions, and was glad to put forth personal effort to secure the attendance of others. He was a member of the Executive Committee of the M.I.T. Alumni Association from 1919 to 1921. The Secretary wrote a note of sympathy to Mrs. Moller on behalf of the class.

Clarence Lamont is now an insurance engineer with Allen T. Archer Company, 215 West 6th Street, Los Angeles, Calif.; home address, 939 Sievva Bonita, Hollywood. Clarence has two sons and two daughters. He writes that his younger daughter was married in March, 1934, that he has a granddaughter born in March, 1933, and that his older son, John, is assistant metallurgist with Union Carbide and Carbon Company, Niagara Falls, N. Y.

While chatting with our Class President, Alexander Macomber, recently, he told me that by chance he met B. K. (Becky) Sharp on the island of Nantucket, Mass., last September. Mac controls a gas and electric company at Nantucket, and was calling at the very fine home of a prominent resident, a Mrs. Sharp. In answer to his ring at the door, who should open it but "Becky." Mac said it took a few seconds of mutual examination before mutual recognition took place, as 27 years have passed since their last meeting, and little did Mac suspect that the Mrs. Sharp he was seeking was the mother of our classmate. Becky's profession is yacht design, office in New York, but there is little doing now-a-days. He has two daughters, one of whom was traveling in Europe with her mother, and the other is in a private school in Massachusetts. His home address is 49 West Castle Place, New Rochelle, N. Y.

On October 16 Carl Trauerman was appointed by the NRA as administration member of the Montana divisional code authority for the retail solid fuel industry. On the evening of the same day he was toastmaster at a banquet of the Roosevelt Democratic Club in Butte, Mont. Not that we are intimating that the two events had any connection!

Through a conversation with Dick Ashenden, we have learned that J. D. Whittemore is with the Chase National Bank of New York, an executive in the department dealing with appraisals of properties. For many years previously he has been in charge of some electric plant near Albany, N. Y. He has two children, a son and a daughter.

Among the members of the class from whom we have heard nothing for at least 20 years is Edward F. Kelly, a graduate in Course II. The address which we have for him is 30 Boylston Street, Jamaica Plain, Mass. After some inquiry we secured the telephone number there, and on November 21 talked with Ed's mother. She sadly gave the information that Ed was married and for many years was located in Boston, but that over a year ago he went to the western part of the country and she has never heard from him since, and has no idea what his address is.

We recently learned that Arthur Tylee has left Boston, where for many years he was associated with George T. McLauthlin Company, manufacturers and dealers in elevators and heavy machinery, and is now at 21 Burton Road, Forest Hills, Toronto, Canada. We do not know his new business connections, but will try to ascertain and report in a later Review. — BRYANT NICHOLS, *Secretary*, 12 Newland Street, Auburndale, Mass. HAROLD S. WILSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1908

The following letter from L. W. Thurlow, who is manager of the Southeastern Service Corporation, 204 Fargo Avenue, Indio, Calif., has just been received: "I have just finished reading the current issue of The Review and was very sorry to hear of Batsford's death. He and I were in Course X together and very good friends. We corresponded for a few years but distance and the making of new friends and acquaintances on both sides was, I presume, the reason why we had not written for years. I enjoy reading The Review and like to hear what the other fellows are doing. I must admit I haven't done my part to keep the column going, but will write a few lines about myself for the benefit of those who may be interested. After my return from the Philippines, where I was with the government for a number of years and then in business for myself (sugar), I was in a number of ventures including ice and ice cream, lime manufacturing, packing plant for fruit and vegetables, and so on, none of which proved to be particularly profitable. A little over two years ago the opportunity to purchase the municipal gas plant in this town came to me, and I have been here ever since. My first month's gross receipts were \$150. We are now doing close to \$4,000 and have a very nice little business. In addition to gas I built a cold-storage plant just about the time the draft beer came back, and utilizing the latent heat of evaporation of the gas used in the city (Butane has a latent heat of evaporation amounting to about 175 BTU per pound) am able to maintain a temperature of -38°F . without recourse to mechanical refrigeration. We have a stand-by ammonia plant that has to be used during very warm weather, but I believe our cost of refrigeration is the lowest in the world. Incidentally, this is the only plant of its kind. I have had letters of inquiry from distant lands,

including Germany and South America. Also, we handle about 90% of the beer consumed in our territory, which is something. The Metropolitan Water District is building the 200-mile aqueduct from Los Angeles to Parker on the Colorado River and 14 of the camps are within a few miles of Indio. It has made our town quite a lively place, to say the least.

"Was very sorry not to have been able to get back to the Twenty Fifth Anniversary of our graduation last June, a year ago, but we were just getting a good start here at that time, and it was impossible for me to get away. Hope to be there at the Fiftieth however. I have two girls and a boy. The two older ones can hardly be classed as children, the girl being 20 and a sophomore in U. S. C. and the boy being 22 and a senior in January. He has made the name of Thurlow pretty well known on the Pacific Coast, being the varsity left end on the Trojans and recently having had the bad luck to break his right leg above the ankle. However, the break was not serious and he will be back again next fall. — Would sure like to get together with you fellows in Boston and have a good talk, but that will have to be later. — With greetings and best wishes to all and sundry."

Any information as to the whereabouts of the following, whose last-known addresses are given, would be appreciated: John S. Barnes, Cushman Road, White Plains, N. Y.; Amos H. Dows, Littleton Road, Chelmsford, Mass.; Gerald T. Hanley, Warren, R. I.; Walter F. Hudson, 14 Proctor Boulevard, Utica, N. Y.

A recent issue of *The Rock* gives an account of the activities of Maurice Denny, Chairman of the William Denny and Brothers, Ltd. His company constructed the steamer *Princess Maud* for the Stranraer and Larne service of the London, Midland and Scottish Railway, which was launched some months ago at the Leven Shipyard. The vessel is the last word in marine construction, and what is of particular interest to the writer is the fact that special attention has been given to fire protection and fire prevention. The vessel is equipped with automatic sprinklers, and is one of the few vessels so protected. This, in addition to the elaborate fire alarm system and fire detection system for the cargo holds, and the use of fireproof paint, should make it a pretty safe ship to travel on. — H. L. CARTER, *Secretary*, 185 Franklin Street, Boston, Mass.

1909

On October 27, 16 members of 1909 met at the Technology Club in New York City for a Class luncheon. Horace Ford, Treasurer of the Corporation, was the guest at this luncheon, giving those who were unable to attend the Reunion at Oyster Harbors last June the opportunity of hearing first-hand from him about the affairs of the Institute.

Harry Whittaker could not attend the luncheon because he was the official representative of the Reconstruction Finance Corporation at the opening of a section of boulevard at Jones Beach, Long Island.

1909 Continued

George Southgate has opened his own consulting office as an electrical engineer at 114 East 32d Street, New York. — Henry Colson is with the G. W. Carnrick Company, manufacturers of pharmaceutical chemicals, in Newark, N. J. — George Bowers is Engineer-Inspector of the PWA projects at Tewksbury, Mass. — Austin Keables is engaged in private practice as an engineer in Beacon, New York. His son, Nelson, is a freshman at Middlebury College.

Had a letter from J. N. Stephenson who says: "The boys had quite a lot of fun trying to identify the paternal relative in the picture of the Class group at Oyster Harbors." Steve is Editor of *Pulp and Paper of Canada*, published at Gardenvale, P. Q. — Lieutenant-Commander D. P. Marvin, who was retired in 1921 for war-time disability but recalled to active duty in 1927 at his own request, has been an instructor at the United States Coast Guard Academy at New London, Conn., teaching various subjects, including seamanship and English, and acting as Librarian. He has now moved to Austin, Texas, and says: "I like to think Government economy is the reason for my present relegation; the three other retired officers on active duty are also going to moorings up the back channel."

The final returns show that in spite of the Democratic landslide, Tom Desmond carried both Orange and Sullivan counties, New York State, by a plurality of over 13,000 votes, running far ahead of the rest of the Republican ticket in both counties. Tom was reelected State Senator from the 27th District. He says: "I am all the more pleased with this successful result because I was not able to do much campaigning. I have nearly recovered my complete strength from the very severe attack of pneumonia with complications which I suffered during the past summer. The doctors say that within a few weeks I shall be as well and vigorous as ever. For the time being, however, I have to take it easy and not do any more work than I can well avoid." — George Palmer is Secretary of the Department of Health in New York City.

Reg Jones has some blue-blooded dogs. A young English setter of his took a blue ribbon at a big show in Philadelphia last week and Reg was naturally very much pleased. Paul Wiswall says he saw the dog last Sunday and was not surprised, as he looked like a thoroughbred.

At the Class Reunion last June, it was decided that we should establish a Class of 1909 fund for the Institute, and the Class Secretary was instructed to circularize the Class to see what could be done along this line. Correspondence between the officers of the Class during the summer indicated that it appeared unwise to attempt to start such a fund until business conditions had improved sufficiently to assure success of the plan. It was therefore decided to hold the matter in abeyance until possibly next spring, when it is hoped that conditions will have improved to such an extent that we would be warranted in presenting the proposal to the Class. This will let you know that

the matter has not been forgotten and will be taken up at a more propitious time. Of course, if anybody wants to subscribe at this time to a Class fund, it would be a very nice thing to do. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries*: PAUL M. WISWALL, Maurice R. Scharff, New York; George E. Wallis, Chicago.

1910

Correspondence has dropped off of late and no letters at all have been received in the past two months. However, the Secretary has been meeting a few of the classmates recently. Seymour Guthrie called the Secretary up for a luncheon appointment and we had a talk over old times. Seymour deserted the engineering profession soon after leaving Tech and studied law. He has been engaged in that profession in Chicago ever since except for his War experience in France. — Berg Reynolds came on from Rochester for a week and was on hand to meet with the Reunion Committee at luncheon. He is with the Eastman Kodak Company.

Plans for our Twenty-Fifth Reunion are gradually taking shape. To the names of the Reunion Committee announced last month has been added that of Jim Cox. At our last meeting, Herbert Cleverdon was unanimously elected Permanent Chairman of the Committee. The committee to take charge of the outing consists of Jim Cox, Ted Whitney, and Hal Billings. The Dinner Committee is Charlie Greene, John Wentworth, and Phil Taylor. The Committee in charge of our activities in connection with the general alumni gathering consists of Professors Jack Babcock, Dean Peabody, and Karl Fernstrom. Tentative plans call for a 1910 Class Banquet in Boston, a week-end at some club or hotel not far from Boston, over Saturday and Sunday, and the general alumni festivities on Monday, June 3, ending with the All-Technology Banquet that night. You will hear from the Secretary shortly with further details of our plans and every effort will be made to bring out a record-breaking crowd. — DUDLEY CLAPP, *Secretary*, 40 Water Street, East Cambridge, Mass.

1911

In the month since writing the last notes I have received two — count 'em — letters from classmates, representing about one-half of one per cent of the class. Well?

Lester Cushman, IV, operating as consulting and designing engineer since April, 1933, has had to close his office at Concord, N. H., and now is anxious to connect with some manufacturing concern which can make use of his 20-odd years of experience along mechanical and building maintenance lines. If you know any leads, address him at 89 Traincroft, Medford, Mass. Good luck, Fat, we all remember you as the Royal Chef in "Queen of the Cannibal Isles!"

Lloyd Cooley, X, writes a fine letter from Peoria, Ill., enclosing copy of a story, "World's Largest Distillery Nears

Completion," appearing in a recent issue of *Chemical and Metallurgical Engineering*. It is a graphic description of the Peoria plant of Hiram Walker and Sons, Inc., with which organization Lloyd is now connected. Look back at your October issue of *The Technology Review* and there on page 8 you will get a view of the plant under the bridge arch. Lloyd says he is busy and happy in his work there.

It is nice to hear that Ralph Walker, IV, of the firm of Voorhees, Gmelin and Walker, architects, has been reelected President of the New York Chapter of the American Institute of Architects for 1934-35. Incidentally we're glad to note that our good friend, Eric Kebbon '12, remains as Secretary.

Charlie Ashley's dad, perennial mayor of New Bedford, has recently announced he is a candidate to succeed himself at the current December election. He is just rounding out his fourth two-year term and previous to that he filled 22 one-year terms. Our Charlie is still at 4616 Lindell Boulevard, St. Louis, Mo.

It sure was great on November 1 to receive from the Alumni Office new addresses for seven classmates of whom we had lost complete track, thus bringing our list of good mailing addresses to 385. Here they are: George Wilbur, V, South Dennis, Mass.; William J. Wilson, I, 22 Greenview Street, Quincy, Mass.; Charlie Maguire, I, 79 Andem Street, Providence, R. I.; Fred Courts, II, 118-18 Metropolitan Avenue, Kew Gardens, N. Y.; Louis Walz, V, Batavia, N. Y.; A. L. Palmer, Jr., V, 57 Riverview Park Drive, Columbus, Ohio; Joe Murdoch, XII, 1319 Pearl Street, Santa Monica, Calif.

These notes will appear just too late for hearty all-embracing Christmas greetings, but best wishes are in order for the New Year to classmates and their families everywhere from Mrs. Denison, our three youngsters, and yours truly. — ORVILLE B. DENISON, *Secretary*, 50 East Main Street, Yarmouth, Maine. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1912

Ralph M. Ferry, II, who is General Superintendent of the great works of the Aluminum Company of America at New Kensington, Pa., occasionally writes us, but characteristically tells us little or nothing about himself or about the big job he is filling, and filling with conspicuous ability, according to reports we get from entirely independent sources. Ralph, however, is mighty good about helping out this column with news he runs across concerning other classmates. He mentions seeing Malcolm Priest, I, who is now located in Pittsburgh. Ralph also forwarded a Pittsburgh newspaper clipping featuring the work of Clarence McDonough, I.

We feel that Mac's work is of sufficient national importance and also general interest to all Tech men to warrant quoting at some length from this clipping, which was taken from the *Pittsburgh Press* of October 21: "The great public works program that Administrator Har-

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1912 Continued

old Ickes told Pennsylvania about in his Pittsburgh speech Friday night has a former Pittsburgher in an exceedingly vital and sometimes a fairly hot spot.

Clarence McDonough, chief of engineering for PWA, lived in Pittsburgh from 1918 to 1926, and was district manager for the Foundation Company — contractor on great public and private works, recognized as one of the world's greatest concerns in that line of business.

... From Pittsburgh he went to New York as Chief Engineer for the Foundation Company, including its foreign department, which operated pretty much everywhere. He had personal charge of a job in Lima, Peru, that practically rebuilt and gave a fresh start to this ancient capital of the land of the Incas. He worked in Chile, Great Britain, France, Belgium, Italy, and Spain. In northern Greece he reclaimed and irrigated 1,200 square miles of the Macedonian plains. That cost the Greeks \$35,000,000. ... This Clarence McDonough is a big, handsome fellow — the kind of an engineer novelists portray as tunneling the Andes, running revolutions, and eloping with the daughter of *El Presidente* of some Latin-American republic. It is true he has a merry glint in his eyes, and you could easily imagine him doing any one or all of these romantic things. But he is safely married. And in business he is a coldly practical engineer. That's why PWA hired him — that and because he has been around so much he knows most engineers and contractors by their front names and can deal on even terms with almost any kind of a public official. ... His job is to pass on the engineering practicality of the plans and to o.k. the sufficiency of such money-raising methods as the County Authority proposes.

Approval of the 'liquidating feature,' or ability to repay, is part of McDonough's duty in all non-Federal projects, of which in 15 months there have been 4,200 passed, averaging about \$250,000 apiece. He has certified the practicability of the \$42,500,000 Triborough Bridge in New York, as well as hosts of small-town sewer jobs worth \$10,000 or less. He has turned down about half as many projects as have been approved. Some of the 'rejects' would be all right, he says, if there were enough Public Works money to go around. ... Mr. McDonough's job, then, is unquestionably the biggest engineering duty in the world today. When the program is completed there will be a trail of public works, from the Atlantic to the Pacific, and from Canada to the Gulf — large and small, waterworks, sewage disposal plants, power plants, schoolhouses, bridges, courthouses, town halls — in each of which he will have a probing finger, and over all of which he will have cast a kindly but critical eye.

Jonathan A. Noyes, II, in New York in November, 'phoned your Assistant Secretary to report all well. He was en route to visit his daughter, Lillian, who is now in her second year at Radcliffe. And John has a son who is almost ready for Tech and hopes to enter next fall.

'Pete' Whittlesey's daughter entered Radcliffe this fall and her photograph appeared in the Boston *Herald* Rotogravure section as one of the prettiest girls in her class. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York, N. Y.

1914

It has remained for omniscient *Time* to call to the attention of the world the greatness of men of '14. On November 19, under the heading of "Transport," there appeared a most glowing tribute to Donald Wills Douglas, and among his qualifications appeared the statement that he was a member of the Class of 1914 of M.I.T. There can be little question that to the world at large Douglas is the best known member of our class, yet his extremely reticent nature has kept him one who, although internationally known by reputation, is intimately known to but a handful of his classmates. Douglas's transport planes are constantly making new records, one of the latest of which was a run from Los Angeles to Newark in 12 hours.

Early in November Donald Dixon paid your Secretary a most welcome visit. Dixon is still on active duty as a Captain of Coast Artillery Reserve and is stationed near Newport, N. H., on one of the CCC projects. He had been home on leave with his family on Cape Cod and was returning to duty.

Malc MacKenzie has added another to his list of civic offices; this time it is Treasurer of the New Hampshire Manufacturers' Association. — Arthur Petts has become associated with a business that is well out in front — electric signs. He is with The Electric Sign Maintenance Company of Boston. Perhaps Arthur will make up a sign for us that we may use at Technology dinners so as to make our customary gas alarm unnecessary.

While in Hartford recently Charlie Fiske talked with Gordon White and learned that he is Chief Engineer of the Hartford Traffic Survey, which organization is making a study of marketing possibilities in and around Hartford. Gordon reported no change in his family status; namely, one wife and one daughter.

Bob Townend was up in Massachusetts recently visiting at Newburyport and Boston but did not have time to look up any of the local gang. One black mark for you, Bob! — Hal Ambler has returned to Boston and is back in the insurance business. — Leicester Hamilton is making excellent progress in his work for the Alumni Association in arranging for greater activity among Alumni residing in Boston and vicinity. The splendid work Hamilton did in organizing the student commuters is undoubtedly indicative of what we may look forward to in renewed activity of Boston Alumni. — HAROLD B. RICHMOND, *Secretary*, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

1915

Times at bat 465; Hits 76; Barring average .164. This is a nice increase over last month and just about enough to cause the merest suggestion of interest from a minor league scout, but still not enough to rouse a really big league scout. Let's do some spring training by sending me some checks to lift our hits up to at least 100. The checks have brought some interesting letters from our classmates scattered all over the world. First, from Mrs. Mary Plummer Rice, as loyal as ever. She writes from Bronxville, N. Y., "I presume the Twentieth Reunion will be stag. In spite of all my ambitions in 1915 I have turned into a typical club woman and I keep very busy. My daughter, Muriel, was graduated from high school in June, and being only 16 she has had to take a year at the Baldwin School in Bryn Mawr before entering that college. Marion, who is 15, is also at the Baldwin School this year, so I have only my two boys at home this winter. Julian, Jr., who is 14, will leave for a preparatory school next year to prepare for M.I.T. Deane, who is two, started in a French nursery school in July and is now well on his way toward the class of about 1953. He is like a grandchild to us and we thoroughly enjoy him. My vacation this year is taking the form of a flying trip to Phoenix, Ariz. It will take less than 24 hours each way and I shall be home in six days. I am going to surprise my brother, Harold C. Plummer '06, V. With best wishes for your success and happy reunion in June." It's delightful to hear from Mary again and we can see from her letter what an efficient mother she must be to this splendid family. It will be a pleasure to welcome her children into Technology.

From good Harvey Daniels in Yokohama, Japan: "I am replying immediately to your letter and enclosing my check, and through you pass on my best regards to '15 friends. I have no changes to report as I am still with the Standard-Vacuum Oil Company and very happily located here in Yokohama. I plan to visit the States next summer and hope I can make it early enough to be with you at our Twentieth Reunion. Be sure and send the plans as soon as formulated." At our Fifteenth Reunion Harvey won the long distance prize, a choice assortment of Blue Jay Corn Plasters to use after his long walk over here. We'll all be glad to see him competing for this honor at our Twentieth Reunion. — From Paris, McCeney Werlich sent his check and his regrets that he cannot be at the reunion, but he sends his best regards to us all. — With all the troubles I have trying to collect class dues, I still get a laugh from the funny rejoinders; for instance, you can just see Speed Swift laughing up his sleeve as he wrote the following from Elkins (where is it?), N. H.: "You — liar. No, not liar, that's too harsh; flatterer is the right word. But just to prove that you had a good line I am enclosing my check just about as soon as I opened your appeal. I have the same old

1915 Continued

job of minding other peoples' business, with no pay. I do town zoning, church treasurer, golf club treasurer, newspaper circulation, Civic Association Treasurer, Fish and Game Club, Hospital Board, and so on." I wonder what Speed does in his spare time?

It's a long time since we've heard from Andy Wardle, who writes from Chicago: "It may be some time before I get to the letter which I hope and intend to write, so I'll send the check now. Whether I get to the reunion depends a large part on the date, so let me know definitely or tentatively soon." — Everybody remembers big Guernsey Palmer and his leading spirit at our Tenth Reunion. From Fort Worth he writes: "I have had no inspiration for a note but will start concentrating on ways and means of making the Twentieth Reunion. It's a long way to Boston these days when you are still supposed to be in the 'heavy industries'." — Jim Tobey is still at the Borden Company, director of their department of Health Service. Shortly after he wrote me I saw him and it's a pleasure to know that Jim is anxious and willing to cooperate in putting on a class dinner in New York City to prepare the boys down there for the reunion preliminaries. This makes an interesting column for this month and next month I shall have more letters and the first report of our Boston dinner on reunion plans. In this January issue I wish you all a pleasant and successful new year, and I hope you have all enjoyed a very happy Christmas. — AZEL W. MACK, Secretary, 72 Charles Street, Malden, Mass.

1917

Here is a news item that should be of interest to the Dean of Students and Father Confessor of budding Institute journalists. Having business in the New York *News* skyscraper on 42nd Street, I recalled that Gordon Shand was connected with the publishers that built the ten-million-dollar structure, and that I had long been promising myself a call on him. I found him no less than Day City Editor.

It might have been a bit disappointing after the impression given by movies and murder mysteries to find one of the quietest large offices in New York with the solemn dignity of R. G. Shand fitting perfectly into the picture as High Command. He has changed little, at least when he removes the horn rims. He lives with his wife and children on Central Park West in the winter and is revamping an old Colonial structure on Cape Cod for summer relaxation. Shand's newspaper career followed his appendicitis-enforced vacation. After he gave up his commission in the Navy, he was one of the group that went in for Naval Construction — and his first work was sports reporting for a Washington paper, then the New York *American*, and now for some years on the New York *News*. Roy Barrows and Harry Toole have been in to see him fairly recently, both apparently in good health and spirits. Shand heaves a glorious sigh of relief when he refers to his emancipation from the engineering

profession but fears that his young son is a throw back to his electrical engineer grandfather, and may not enter Harvard after all.

We have the following from Stan Dunning: "Fred Foss is with the Fred F. French Company in New York and is the engineer in charge of the job — the large lower East Side Public Works Development, the Knickerbocker City. I ran into him when wandering around the labyrinthic project. From the tall, thin lad of other years, Fred is now a husky 250 pounder.

"When in Washington the other day attending the Convention of the National Association of Paint, Varnish and Lacquer Industries, I ran into Dean Parker, who is a paint chemist with duPont's, living in Philadelphia and quite enthusiastic over the interesting and important branch of chemistry."

A clipping from the Boston *Transcript* has been sent us which gives a review of the show "Say When" which has been at the Shubert Theater. Among other things, we note the following: "It is the settings by Clark Robinson (M.I.T. '17) that are the most unusual part of the entertainment. He has an eye for rich velvets, with which he achieves an effect of originality by draping them to suggest impressionistic trees. His opening scene, too, is out of the ordinary, with the audience looking over the rail and across the deck of a liner into the windows of a saloon. His interiors of the home of the banker are tasteful and dignified." — RAYMOND STEVENS, Secretary, 30 Charles River Road, Cambridge, Mass.

1918

The imaginative editors of The Review have asked Class Secretaries to pass on news items of other classes, thus in effect giving each Secretary an assistant in every other class. This idea should be celebrated by ringing the church bells and proclaiming a square dance in the streets, but this laggard scribe hereby appropriates unto his own columns the first item received under this new deal, and justifies it as news of Uncle James Edward and John Robert Longley's nephew, '33. The lad, it seems, got a job with the New York Telephone Company as assistant to a cable splicer. Then, so the delightful story runs, a pious and godly granddame of the more fashionable suburbs complained to the company of certain blasphemous language which had profaned the peaceful atmosphere above a manhole in her peaceful street. The splicer was forthwith summoned to answer the complaint. His was a virulently unresponsive note. He was not, he said, a man to meet trying situations in full temperamental bloom. No indeed! But his assistant, as delightfully theoretical a chap as ever adorned paper with fulsome formulæ and incommunicably obtuse calculations, had been a wee bit careless on that unhappy day concerning which the dowager complained so disgracefully. Indeed, the boy had tipped over a pot of molten lead in handing it to the splicer below, thereby, as it were,

raising the temperature of certain portions of his arm and foot (observe the bandages) to points above those calculated to be healthy even for the flesh of a "he-man." "And what did you say to him when you came up out of that manhole?" "I said . . . I said, 'In future, John, you must be more careful' (or words to that effect)!"

It pains us irremediably to be forced, as a matter of policy, to print this communication — a palpable forgery: "Meiner geliebte Classmates: Now vill I a few remarks over our secretary make. Id's very hard a man vot has whiskers got to approach, aber when der angry passion rise meiner breast mit in is when he fancy Ich habe eine letter gewritten vich Ich habe nicht gesehen. Der is, in der furst place, more dings to dalk about vot is worth while den whiskers, und besides it takes no mademadics um zu sehen das die letter vas not in my style gewritten. Ach, ach, I'se got so excited ven he sez I dot rot in der November Review gerote haben dot I this hardly write can. He iss, he iss — vell, I guess I am stuck! Auf Weidersehen, Harold Weber."

Full denial in Professor Weber's own rapid, racy, readable English is expected within a few days. — F. ALEXANDER MAGOUN, Secretary, Room 4-136, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, Assistant Secretary, The Thomas School, The Wilson Road, Rowayton, Conn.

1920

I was very pleased to receive a visit from Mr. and Mrs. Francis Mead. Francis is living in Rockville Center, Long Island, and has a fine family of four children. Mrs. Mead tells me that one of his sons describes him more or less correctly as a "comical engineer," but actually he is a chemical engineer with Charles Pfizer and Company, prominent manufacturing chemists of Brooklyn, N. Y. Francis was able to give me a bit of news about one or two of our classmates. Al Glassett is with the Struthers-Wells Construction Company in New York City. Hank Caldwell is still with the Swenson Evaporator Company in New York. Leo Kahn is still prominent in musical circles and his orchestra has been broadcasting over WNEW at Newark.

Clinton Bond is with the Standard Vacuum Oil Company at Calcutta, India. Professor Al Dumas may be reached at 68 Brown Street, Quebec. Henry Forrest's new address is 586 Ramapo Road, Teaneck, N. J. We also have a new address for M. B. Littlefield: 1 Hazel Lane, Larchmont, N. Y. Harold Seavey, whom I met not long ago in Hartford, is in the upholstering business. His home address is 935 East Squantum Street, Squantum, Mass. Arthur Williams of Course I is going to Chicago, address 2225 Argyle Street.

I have nothing definite to report as to the impending Fifteenth Reunion but, as mentioned before, we eagerly await your suggestions. — HAROLD BUGBEE, Secretary, 7 Dartmouth Street, Winchester, Mass.

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1921

1935! Another year, another milestone to mark our progress — and with it go our greetings to everybody. With our Fifteenth Anniversary just a year-and-a-half in the future, we were considering starting a discussion of reunion plans at this time when there arrived a letter from Dugald Jackson suggesting that the event be embellished with a book of class history. Apparently thinking along similar lines, Harry Granger dropped into The Review office recently and inquired about a class book. Your Secretaries will be glad to receive comments about our Fifteenth Reunion and the publication of a class history.

Speaking of history, along comes Saul M. Silverstein, Technical Director of the Rogers Paper Manufacturing Company, South Manchester, Conn., with an important item for the class archives. Says Saul: "Noting the dearth of 1921 news, please note that I have my third consecutive biennial announcement to submit. On July 7, 1934, Barbara Joy joined Lee Marvin (1930) and Phyllis Ann (1932). I am not promising that this will keep up indefinitely, so here's hoping other news comes in!" Best wishes to all at 39 Stephen Street, Manchester, Conn., to which our own little Alfred adds a share for Phyllis who is one day his senior.

Another note for the record of vital statistics tells of the arrival of Margaret Ann Miller on May 25, 1934, to Mr. and Mrs. Robert Francis Miller of 55 Grant Street, Taunton. Best wishes and a hearty welcome to our big family.

Among the patents issued in October last was one covering a spring unit invented by J. Rowland Hotchkin. Hotch, who will be remembered for his work in the Mandolin and the Banjo Clubs during our undergraduate days, continues his hobby as a member of an orchestra known as the "Key of C Boys." He is at other times behind the door marked "President and Treasurer" in the offices of the Palnut Company, Irvington, N. J. Mr. and Mrs. Hotchkin live at 96 Haddon Place, Montclair, N. J.

Professor Dugald C. Jackson, Jr., Head of the Department of Electrical Engineering in the School of Engineering and Architecture of the University of Kansas, Lawrence, Kansas, adds considerably to the joy of this assistant secretaryship by his kindness in taking the time from his many duties to send us a most welcome letter bringing his own history up to date. In 1930, Dugle came to his present location from the University of Louisville, where he was head of the combined departments of mechanical and electrical engineering. He continues: "My first year here saw the largest enrollment in the University that had occurred up to that time, and the Engineering School rose on the crest of the same wave to an enrollment of 650. Since then the depression has forced the enrollment down to 478 last fall, but we have begun to increase slightly with 502 this year. We graduate from 25 to 35 students annually in electrical engineering. Since 1930, we

have had 15 graduate students in the department and eight have already obtained their master's degrees. I have always been interested in encouraging better students to do graduate work; in 12 years of teaching I have sent nine men to Technology, Harvard, and Yale for graduate study.

"I spent the summer of 1931 in Kansas City with the Kansas City Power and Light Company. I have been in the East during the last three summers. This last summer I spent six weeks at the Institute teaching Triple E to the poor non-electricals, but they were more interested or harder working than normally, and all of them passed, with several making really good grades.

"While in the East I took my oldest son, who is 15 and a junior in high school, around to several engineering schools, as he thinks he is interested in either marine or aeronautical engineering. As a result of these trips his interest seems to lie mainly with Technology, and I think he will try to enter in 1936. I am wondering whether any other 1921 men have sons or daughters as close to college as is Dugald, 3rd. I certainly am beginning to feel more or less antique with a youngster so near college who sports a bright red letter which he won as a substitute on the high school basketball team last year. But the three younger children — 12, 7, and 5 years old — are entirely too active to allow me any opportunity to grow old.

"I have found the students coming to the University of Kansas to be some of the best that I have had to do with in my teaching experience; they come from good stock, are generally well prepared, and are really very much interested in obtaining a good education. The entire family is having a very interesting time here, possibly more enjoyable than in any other place we have lived. However, depression, drought, and all the other disagreeable doings which begin with 'd' have affected matters so that we are very busy due to retrenchment in magnitude of staff and salaries. Just so I won't feel unoccupied, I was handed the job last January of Vice-President of the Kansas Engineering Society and in November I was elected President for 1935 of the Kansas-Nebraska Section of the Society for the Promotion of Engineering Education.

"Now that we are approaching the Fifteenth Reunion of the class, why don't you get out a class report such as is done in a number of large Eastern colleges? Such a report would include individual histories of all the members of the class who are living, giving residence and business addresses, name of wife and date of marriage, names and birth dates of children, besides such data as degrees from various schools, clubs, fraternities, professional and scientific societies, and a brief history of each man's life since leaving the Institute. The report should also include short articles on each member of the class who has died." No doubt most of us would like to have such a class record but experience in vainly asking, pleading, cajoling, threatening, and

otherwise abusing the entire class for news for these columns makes us feel that this bigger task is a real order. However, if everybody will follow Dugald's example and start now to send in data for a class book, the job will be greatly simplified. Thanks for the fine letter and your interest, and here's hoping you find time to drop in on us when you come East next summer.

How about making — and not breaking — a New Year's resolution to write to your secretaries? — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, South Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1923

The first important news this month is from Pete Pennypacker. He writes: "On October 23 a little daughter arrived at our house. Her name is Judith Staunton Pennypacker. Her particulars are (at time of birth): weight, 7 pounds; length, 22 inches; voice, loud and musical. I now live in the attic, as my den has become a nursery." Pete also reports that an event for the New York Club in the near future will be to spend an evening at the Museum of Science and Industry, where President Bob Shaw officiates. Bob has issued the invitation, but a date has not yet been set.

Major Archie S. Buyers writes that he is now on duty in the office of the Chief of Ordnance, Washington. — J. W. Voelcker, VI, who has been since 1931 at the Bradford Works of the English Electric Company writes: "In September I was transferred to the company's Stafford Works and find myself once more back in research with some extension of premises to cope with shortly. While in Bradford I moved from traction motor designer to sales experience in traction and body-building and finally to the Traction Department handling tenders and contracts. Now, as I say, I have moved to research and am occupied with some development work in mercury rectifiers. I was warned for six months abroad on a tramway job, but that has not as yet come off."

Thanks rather to an alert press than any attempt on the part of the gentlemen in question to report the information, we are able to report certain engagements and weddings. H. W. Long, XII, is engaged to Miss Harriette W. Patey, of Newton, prominent New England landscape architect. The Boston *Transcript*, in publishing the announcement reviewed Long's record in the regular army which he left in 1925 to enter the construction business: "He served with the French army in the American ambulance field service before the United States entered the war, and later flew with the 93rd Squadron, Third Pursuit Group of the A.E.F., which was built around the Lafayette Escadrille. He was promoted to a captaincy, and awarded the French *croix de guerre*."

The *Transcript* is also authority for the engagement of Howard H. Dawes, VI, to Miss Mildred Louise Salmon of Everett. — The New York *Herald-Tribune*

1923 Continued

confirms the marriage of Dr. Joseph L. Hetzel, VII, to Miss Margaret de Lancey on October 12, in Waterbury, Conn., where Hetzel is practicing medicine. Their engagement was reported in the July Review.

James I. Rooney, I, was married on September 8 in Adams, Mass., to Miss Mary Kernahan and sailed on a month's cruise to Panama and South America. This information comes from the Boston *Globe*, which further states that on their return the couple will live in New York. — A clipping from the Boston *Herald* covers the then impending marriage on October 27 of Richard Hittinger, II, to Miss Eleanor Wade Bowker of Waltham. The couple now live in Belmont.

E. R. Gordon '21, who is managing a mine for the Amparo Company in Guanajuato, Mexico, reports that while in Mexico City recently, he ran into Harry Bruner, III. Bruner had left the petroleum game which he has followed for some years and is now working on air conditioning with headquarters in Mexico City. It was ten years since these two men had met, dating back to the time when they were both working for the Penoles Company at Ojuela in Durango. — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNY-PACKER, *Assistant Secretary*, Room 661, 11 Broadway, New York, N. Y.

1925

A letter from our Class President, Frank Preston, arrived the other day. I select a pertinent paragraph:

"While I was in New York I talked to all our classmates that I could at our reunion. Almost all of them agreed with me that we were lost in the shuffle last time, and that it would be better to be outside Boston where the Class could be together without so many others around. However, we can't very well cut the Alumni Day and Dinner of June 8 entirely. I don't know what the Institute plans to do, but we ought to have the Class by itself for at least a whole day." Frank adds that his present address is Luke, Md., where he is working for the West Virginia Pulp and Paper Company.

As to the Class reunion; since the Alumni Day and Dinner referred to by Frank takes place on Monday, I suggest that we plan to start our reunion with some kind of a dinner or other affair Saturday evening, followed by an outing, supper, house party, or something similar on Sunday. Monday morning would be reserved for visiting around the Institute, followed by participation in the Alumni Program during the afternoon and evening. If you Review readers will send in suggestions, we shall gladly incorporate any reasonable idea into our plans.

By the press-clipping route we learn that Bill Fagan, XV, was married recently to (Dr.) Veronica C. Barrett of Brooklyn. They will reside in Bill's home town of Pascoag, R. I.

I am still looking for volunteers to act as Secretaries of Courses V, IV, X, and XV, as well as someone who would be willing to attempt to keep in touch with

the members of the smaller Courses. Men who travel, or those enjoying unusual opportunities for correspondence preferred, but any willing worker will do. Our present staff consists of Kenneth Lucas, I; Nelson Malone, II; Roy (Doc) Foster, III and XII; and myself, XIV. This last is in addition to my duties as acting Secretary of the entire class. — HOLLIS F. WARE, *Acting Secretary*, 16 Smith Avenue, Reading, Mass. HENRY V. CUNNINGHAM, JR., *General Secretary*, 43 Chestnut Street, Boston, Mass.

COURSE I

A letter from Paul Hess brought the information that he is working for Hege-man-Harris Company, builders, in New York. His present title, or at least his title this summer, is that of chief estimator. He is married, has two children, and lives 30 miles out in the suburbs in Chappaqua, N. Y.

George Myrick was reported this summer as working on a job in West Point for the Government. — KENNETH LUCAS, *Secretary*, 435 Franklin Street, Reading, Mass.

COURSE II

A letter received from Lauria some time ago discloses that he is now in charge of the Goodyear branch at Evansville, Ind. Doucette keeps busy at A. Schrader's Sons' plant in Brooklyn, N. Y. I talked with him on the 'phone recently when he was attending Ordnance classes at the Institute. Bob Huthsteiner was in Boston recently and lunched with Speed Hopkins and the writer. He is working for Electric Bond and Share in their Engineering Department, and located at Allentown, Pa. He can be addressed at the Americus Hotel there. Hopkins continues his work in the financial world and is now associated with H. L. Nason and Company.

Huthsteiner brought word of the following: Harrison Browning is still active in the gear business in Ohio; Wade Johnson is married, and associated with Good-year Tire and Rubber Company; Jim Holland's business connection is unknown by the writer at present, but I am looking forward to news from him and the others so that the rest of the Class will be enlightened. — NELSON D. MALONE, *Secretary*, Boston Manufacturers Mutual Fire Insurance Company, 185 Franklin Street, Boston, Mass.

1926

Robert E. Mattson, our transport specialist, has already become a veteran and well-known railroader. I quote from *Railway Age*: "Robert E. Mattson, roadmaster on the Northern Pacific, with headquarters at Lester, Wash., has been promoted to superintendent of operation of the Northern Pacific Transport Company (motor truck operating subsidiary of the Northern Pacific), with headquarters at Billings, Mont. . . . He entered railway service in August, 1926, as a track apprentice on the Northern Pacific, at Duluth, Minn. In April of the following year he was advanced to assistant roadmaster, with the same head-

quarters, and in December, 1927, he was appointed assistant supervisor of bridges and buildings, with headquarters at Fargo, N. D. In April, 1930, Mr. Mattson was further advanced to roadmaster at Fargo, and later served in this position at Mandan, N. D., and Lester, Wash., being located at the latter point at the time of his recent appointment as superintendent of operation of the Northern Pacific Transport Company."

Howard Humphrey, whose chief business since graduation has been that of curing sick industries, has hopped over the fence and affiliated himself with a very successful one. I quote from a recent letter: "I am working now for duPont Rayon Company. The position was offered me in September and after much thought I decided to give up my management consulting work with Professor Freeland and accept. By October 1, I had finished my activities with our Boston accounts, had packed and stored our household goods, and was in New York. I am working in the Control Section of the Viscose Division as a special assistant to Charles A. Cary '12, the Control Manager. For some time I shall be at the plants in Buffalo, Richmond, and Old Hickory, learning the details of the work, and then I expect to be located definitely in New York, at the Empire State Building."

The spate of marriages in the last six months evidently is over, for we have only one nuptial note. On November 2 Edmund F. Oeffinger of Philadelphia was married to Miss Muriel F. Brook of East Orange, N. J. They will live in Philadelphia.

Andrew R. Brugnani is with the Bethlehem Steel Company at Steelton, Pa. — Lewis P. Buckner is with the New York Life Insurance Company, 51 Madison Avenue, New York City. — Isaac W. Gleason, sometime geophysicist, is now with the New Jersey Power and Light Company, Flemington, N. J. — Leo Jürgenson now hovers behind this address: 33 Mae, Tartu, Estonia. — Marcellus B. McDavitt is with the Bell Telephone Laboratories in New York. — Joseph H. White labors for B. F. Goodrich Company, Akron. — Robert A. Williamson is with the General Electric Company, Engineering Department, of New York City. — D. B. Powers has returned from the Orient where he was engaged in sound reproduction work. Now at Los Angeles, he plans a trip to New England. — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1928

On October 20, Mr. and Mrs. C. Winthrop Jones, Amherst, Mass., announced the engagement of their daughter, Miss Gertrude Harper Jones, to Charles Edward Lyons of New York City, son of Andrew Lyons of Somerville. Really, Chuck, we expected this sooner. Heartiest congratulations!

During a recent trip to New York City, your Secretary was bowling along Fifth Avenue in the full throes of a rapid

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1928 Continued

morning constitutional, when he was hailed by a cheery greeting from behind. The owner of that voice proved to be Parker Morell, an old friend from Course IV. Parker was one of the most outstanding writers ever to serve on the Editorial Board of *The Tech*. His flair for the linguistic proved itself on many occasions, and we are happy to report that it was the forerunner of something quite outstanding in this field. The usual greetings were exchanged, and we learned that Parker has been working for his father, who is a jeweler at 608 Fifth Avenue, New York. Most interesting, however, was the brand new book which Parker carried under his arm. It was a very recent publication of Simon and Schuster. The publishers of this book had punched a small hole through the front cover. In it was mounted a large paste diamond which sparkled through another hole in the wrapper as the stickpin of Diamond Jim Brady, whose picture covered the front of the book cover.

"Diamond Jim" is the title of this interesting new volume by Parker Morell. The book has been running in serial form in Hearst's International *Cosmopolitan* Magazine. It is an absorbing, almost unreal story of the Gay 'Nineties, an intimate description of America's super-salesman, most reckless spender, and best known man-about-town.

"Diamond Jim" has attracted wide interest and Parker told me that he was leaving New York City within a few days to complete an eight weeks' scenario job in Hollywood. He also mentioned that he was working on the manuscript of another book. To Parker Morell we extend our congratulations and best wishes for his continued success. — GEORGE I. CHATFIELD, *General Secretary*, 5 Alben Street, Winchester, Mass.

1929

The only news this month seems to be of engagements and weddings so here goes: The marriage of Arthur Marsh, XV₂, to Miss Isabel F. S. Owens of Morristown, N. J., on October 11 was announced in the Boston papers. Art is still connected with the Carrier Engineering Corporation of Newark, N. J. The marriage of Malcolm Hubbard, VI-C, to Miss Myriam Bentley Kent of Pittsfield, Mass., took place in Stockbridge, Mass., on October 20. Gus Nicholson, VI, and Rawson Godfrey, XVI, were among those who attended the ceremony, and were best man and usher, respectively. The marriage of Johnny Wilson, XV₂, to Miss Helen Cooper of Boston was announced October 28. They will make their home in Greenville, S. C. The marriage of Mirko Paneyko, VI-A, to Miss Lenore Lane of Hampton, N. H., on October 28 was attended by St. George Arnold, VI-A, as best man. The couple will live in New York. We all join in wishing these classmates all the happiness in the world in their new venture.

It is often a matter of considerable speculation with me on what number of our classmates have gotten married and the fact has escaped the notice of our

news clipping bureaus. In most cases that is the only announcement we get of the activities of the class, and since the news of the weddings and engagements are about the only items that are published about the class, that is the only news we have for publication. I dislike the task of persistently hounding for news, but that's the only way we can make this column interesting. Let's make that New Year's resolution to send in some news of your success or whereabouts. In years past the same request has been made that such a resolution be made by all of us, but nothing great ever seemed to come of it (even if it was made). Stop and consider how desirous you are of learning about the rest of the boys and figure that we are all just as interested in what you may be doing yourself. Just a line occasionally will give us all a break and perhaps if a few start such a schedule, many will follow. Remember, there's very little news unless you make it, and send it in for publication. We could publish a short story in our notes every month and perhaps I could get my wife to write alternate months, but that would not be news. What we're all interested in is your story since you left our company back in June 1929. Let's try a bit harder to keep our class together in our monthly notes in *The Review*, for if we do not keep up that link our organization as a class could very easily disintegrate. That would indeed be unfortunate, for in years to come we will grow to cherish our old associations in *Technology* more and more. I know it would be a distinct personal loss to me and I don't feel I'm any different from most of the class. Therefore, now is the time to start the ball rolling.

Cornell University announced on September 22 the appointment of John G. Kirkwood, Grad., as assistant Professor of Chemistry and we join his friends in congratulating him on his achievement. Len Peskin, XVII, writes that the big reason he didn't get to the reunion in June was that on May 31 he became the proud parent of a son, Richard Leonard. He also states that soon after that he left Cambridge and *Technology* to accept an excellent opportunity offered him in the research laboratory of the American Steel and Wire Company in Worcester, Mass. He is now living in Worcester, but visits M.I.T. about once a week, and still represents the class at the Alumni Council meetings. We all join in congratulating Len on these latest developments and say keep up the good work, at least as to one.

Now about our gang here in Akron. Hal Dick, I, was an extremely fortunate member of the staff of the Zeppelin Corporation, for he was one of two chosen to spend several months in Germany studying lighter-than-air construction and operation. He is making all the trips on the Graf Zeppelin from Germany to Brazil and return this season. Hank Gibbons, II, is also with the Zeppelin Corporation and specializes in stress analysis. Hank is also quite a glider enthusiast and pilot. The fact that Hank

THE TECHNOLOGY REVIEW

holds down a job in stress analysis with the Goodyear Zeppelin Corporation is worthy of commendation, for the German specialists on that work have contended in times past that it's way beyond us over here. Johnny Hartz, X, and Gene Gilman, X, are still in the chemical engineering end of Goodyear Tire and Rubber Company. Gene's work is mostly on chemical plant operations while Johnny's is more general. I'm still in the tire design end of the development department of Goodyear in the present capacity of Manager of the Technical Service department at Plant II, Akron. Plant II is the high production Akron plant with a capacity about as great as all the other Goodyear plants put together, so you can well imagine I'm kept busy. Last month I had a surprise visit from Gratz Brown, II, and learned a lot of interesting facts about his wanderings since he last stopped off to see me. Gratz is still with A-C division of General Motors and is still working on air cleaners and silencers. During the last year he has spent considerable time in England, France and Germany starting those units in production in those countries. He is now back in Flint, Mich., and is still the same Gratz we knew back in school, clever, unmarried, and drives like blazes. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

1930

COURSE X

This has been a great year for weddings, and the ball and chain has been securely fastened to the ankles of two more of our once care-free youths. On September 8, in New York City, Carl Franz was married to Miss Esta Lillian Wilson; and on October 28, Frank Fahnestock was wedded to Miss Catherine Ellen Bickford, at Conway, N. H. According to the last reports, Carl is with the General Chemical Company, while Frank is working for Vacuum Oil. Our congratulations and best wishes to them both! Who is going to be the next one to go up to the altar? A lot of us have been married, and there have probably been some weddings of which we have not yet heard. However, as long as Dick Wilson remains single, the Rochester girls still have a chance.

From Greg Smith we have news of Sanford Moss, who is on leave of absence from the Viscose Corporation and is studying for the doctorate in Caius College, Cambridge University, England. Sandy is majoring in colloidal chemistry, the field in which he worked previously at Cambridge while on the Redfield Proctor Fellowship from the Institute in 1931-1932. — In order to keep up on the fundamentals of chemical engineering, since my work at Kodak is rather specialized, I am trying my hand at teaching elementary chemical engineering to an evening class in the University of Rochester Extension Division. It has certainly made me brush up on a great many points that had been getting more than a little bit rusty, without my realizing it. — HOWARD S. GARDNER, JR., *Secretary*, 380 Ridgeway Avenue, Rochester, N. Y.

1932

The week-end of October 12 I managed to get a look at the outside of the Institute but was surprisingly successful in missing classmates. The only news I have is of the three weddings and an engagement that were sent in by the clipping service. The engagement of Miss Eleanor Bennet to Bob Butler has been announced and the date for the wedding set as November 1. The last Saturday in September Dick Stewart was married to Miss Eleanor Noel Russell in their home town, Montclair, N. J. Also in September, John Graham was married to Miss Ruth Norcross in Newton. They are now living at 11 Stephenson Avenue, Dunellen, N. J. It has been announced that Herb Ross has been secretly married since April to Miss Marion Howard.

Here is some interesting news from an old "funster" (Crowther): "After 10 months in Shell's main office, doing cost engineering work, I have been taken into the training class, now including three Princetons, a Yale, a Cornell, a Navy, and this struggling 'Technite.' A prerequisite of this elevation is the loss of one's home; i.e., we are transferred hither and yon within the broad domain of the company, supposedly getting a broad picture of the industry. My first jump is to this snappy little country town (Arkansas City), where I think I am going to have a very good time. I was born in this state (Kansas) and haven't been in it since I was two months old, luckily or unluckily. They still have a dry law here which provides much amusement; that is, drinking is still compulsory. John Northup is with Owens Illinois Glass in Owens, W. Va., where he runs the company budget. Rash is still going to town with the mouth wash maggots, Lambert Pharmacal. Lots of other dope, but I'm just moving in down here and I'm pretty busy. More anon. Yours in the bond (unsaturated) — chemists will comprehend."

I sometimes wonder what has happened to all of the Course Secretaries with the exception of Chapin, who has his usual notes for Course III printed below. — CLARENCE M. CHASE, JR., *General Secretary*, 539 Central Avenue, Bound Brook, N. J.

COURSE III

The first paragraph was sent in for the November Review but it was necessary for the notes to be cut, and it was Orne, without my knowledge until later, who was given the ax. We shall hope that this will be the only kind of ax that will be coming his way for a long time. Professor Locke forwarded me a letter from Orne. Good luck came his way at last, and when it came, it came double as he had two opportunities to pick from. He chose the Kailan Mining Administration where he went to work in the middle of July. It is a Sino-British concern dealing mostly in coal. The agreement is that he is on probation for six months to a year, after which time he will be offered a contract, both parties willing. Looks like it is in the bag now. Good luck to you, Orne. His present duties consist in getting

acquainted with the workings, and he works six-and-a-half days a week, having Sunday afternoon off. It is interesting to note that the equipment and conditions are in no way inferior to those here in the United States. . . . Bearce has been striking it pretty lucky. Those placer operations that he has been operating on the side are rapidly and literally lining his pockets with gold. One pocket he ran into gave him \$50 in six evenings' work, and on another occasion he took out 20 wheelbarrow loads in four hours and recovered a full ounce. The average has not been doing so well, but a few more pockets like that, and we will have a moneyed man in our midst. Incidentally he has given up his mill job in Colorado in the light of a very severe winter coming on, so may be back around Boston by Christmas time. Hope he has that \$3.36 nugget on his watch chain.

And now the tide turns a little. Back last February I met Kelly in New York and he told me that he had given up his position with the American Oil Company about the beginning of the year, and as nothing had turned up to take its place at that time, it was agreed not to say anything here until later. I heard indirectly that he had gone with the Scrub Oak Mine of the Alan Wood Mining Company, where, it was reported last month, Demas was also working. A postscript on a recent letter from Professor Locke says that the Scrub Oak Mine has closed down, thus throwing Kelly and Demas out on the world again. I have no more particulars, and we hope that either the company finds another opening for them, or that something else will turn up very quickly.

That is all for the minute. There are a number from whom I have heard nothing since June, 1932. If it so happens that you do not even have the penny for a post card, let me know and I shall send one immediately. Anything for news. — HENRY J. CHAPIN, *Secretary*, Y.M.C.A., McKeesport, Pa.

COURSE V

George Nealand kindly sent these notes to the General Secretary, who is appreciative of this cooperative effort. Nealand is working for Carter's Ink, Boston.

Ed Blaisdell is working for Ph.D. in Physical Chemistry at M.I.T. — Phil Bruce is working at Simplex Wire and Cable Company. He was with Lever Brothers for a while. — Ernie Steele is working for Atlantic Research Associates in Cambridge. He spent most of the summer in Nova Scotia on a job with the above company. — Joe Richmond is working for Ph.D. in Organic Chemistry at M.I.T. — Al Wilson is working for Lever Brothers in Cambridge. — Ed Rosenquist is working for Ph.D. in Organic Chemistry at M.I.T. — Mal Davis is teaching at Harwichport, Mass., on his second year. — George Murray is working in Florence, Mass., for a toothbrush concern. — Elmer Stotz is working for Ph.D. in Biochemistry at Harvard Medical. — Alva T. Wilson, *Secretary*, Lever Brothers, Cambridge, Mass.

1933

Well another month rolls around and during it we have had another very enjoyable reunion of the New York group at the Technology Club of New York. We had about 25 or 30 fellows out this time and spent a pleasant evening swapping stories and experiences. The fields we are represented in become larger every time someone new turns up. Another get-together is planned for the middle of December and at about two-month intervals following. If you are in town, give me a ring and try to make one of our dinners.

A few faces we hadn't seen since the big day in June, '33, were around. Leo Dewar is connected with Sobol Brothers, an automobile service station chain here in New York. At present he is accounting for the shortages in gasoline which have occurred and is doing a swell job of it. Stan Sapery is with Victor Metal Products, who manufacture collapsible tubes and tube caps. At present he is selling for them. Ev Coon was there but is now doing research work in the Bell Labs. Mac MacKechnie is working for Shell Petroleum and has just been advanced and transferred to Sewaren, N. J. George Robson was also around and is doing swell. Garbauner was back in town waiting for the New York Distilleries to open again. Garb has been with this company and General Chemical since leaving school and was waiting for more demand to start the stills going again. I don't need to tell you what brand of gin he recommends. Bob Ripin left a few days after the dinner for West Virginia, where he is to do some industrial engineering work.

Len Gifford was down a few weeks ago and told me that Bill Rand is taking the fatal step just about as I am writing this. The date — November 24th; the girl — Jean Lindsay. Congratulations, Bill and Jean, and lots of good luck. While we're on the subject, Emmie Norris tells me of the engagement of Gil Ayres to Charlotte Hammer. There must be something in that New England air that gets these fellows; or is it the inducement of income tax exemptions?

A last-minute letter from Nat Goodman tells me he is with Sears, Roebuck in Philadelphia and wants to know if any of the boys are down there. You can get in touch with him at 2800 Germantown Avenue. Brooks, a graduate student, is also with Sears doing time and motion study work. That's my story now. More next month. — GEORGE HENNING, *General Secretary*, 163 Barbey Street, Brooklyn, N. Y.

COURSE I

Most of the items in this month's news came from Johnny King, who is our western reporter, and Gene Nedbor, who covers the eastern water front pretty capably, too.

Johnny writes from Denver, where he is still at work for the Bureau of Reclamation on the interpretation of strain-meter data from the new Morris or Pine Canyon

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1933 Continued

Dam. With a new desk and swivel chair to recline in, he finds himself looking out at the snow peaks and thinking of the skiing up around Boston. There are four other Tech men living with Johnny. Al Carnell of our class is working on spill-way design, along with Lincoln Reid '29. Walt Swanton, a chemical engineer in our class, is working on economic studies and estimates and some concrete design. Some of the other Tech men that comprise what is perhaps the largest group of Course I men west of the Mississippi are R. G. Rolin, on arch analysis, I. T. Malmstrom, on earth dams, and A. W. Adkins, mathematician extraordinary. We're all mighty glad to hear from this little group in Denver.

Gene Nedbor is now living in Brooklyn and working in New York with the Coast and Geodetic Survey as a computer of latitude, longitude, and such. With him at the same tasks are Al Minkus and Fuzzy Cahaly, who spends a suspicious amount of time running back and forth to Boston. Soisalo, by the way, has just been married, on the 3rd of November, I think. Warren Daniels has left his job with the Massachusetts Department of Public Works to join the U.S.C.G.S. in Pennsylvania, while Josh Shea is in the Boston office of the same organization, where he has been plugging away since just after graduation.

Gene has just seen Dick Payzant and Bill Conant. Dick had shipped out on the United Fruit Company boats and sailed between Canada and Honduras, but just at present is after another job. Bill finished his course at Babson awhile ago and is also out to conquer the world. Dan Chippendale is in the mechanical department of the Boston Edison. Mac Aleer and Bradley at latest reports were working at some special triangulation work the army is doing in connection with coast defense. Phil Coffey is busy in Boston with the Coast and Geodetic Survey, with office at 100 Nashua Street in the Public Works Building.

Reports place Petitmermet as doing graduate work at Columbia University. Rudy Rosas, they say, too, is in Mexico. If he should by any chance read this, I wish he'd drop me a line and tell us of his doings there. Linc Ryder has finally settled with Metcalf and Eddy in Boston. He formerly was with the Massachusetts Highway Accident Survey, and from there went to work on the Cape with Mac and Brad. Kirk Miles has taken a job with the Hawaiian Dredging Company in Honolulu, earning the distinction of being farthest west of our course. Westy continues with the Boston Consolidated Gas Company in Boston, and has taken a new apartment on Beacon Street, I hear.

Johnny Newbegin writes that he has a position as junior engineer with the Oxford Paper Company up in Rumford, Maine. He is at work designing equipment used in handling logs and pulp, and finds plenty of time to continue his hobby of skiing. — DOUGLAS M. STEWART, Secretary, 910 Ostrum Street, Bethlehem, Pa.

COURSE III

Our first bit of news comes from John Streng. You remember how Johnny disliked metallography back in school. It just wasn't up his alley, but now he just has to like it. At the present time, he is assistant metallurgist in the Hot Strip Mills of the Inland Steel Company, where he has to do considerable metallographic work. He is also doing control testing which necessitates his taking turns with the other men. Turn work seems to be the great bugaboo of all young fellows starting in the steel industry. Now that the nights are getting cold, it is not much fun going out to work at midnight. Probably you fellows who have not been around steel mills don't know they get just as disagreeable in the winter from the cold as in the summer from the heat. Previous to this job, Johnny was working in the blast furnace department for the same company. As he expresses it: "I almost learned how to handle a shovel before I was transferred to the metallurgical department." To you fellows who like to write letters, Johnny's address is 3442 Fir Street, East Chicago, Ind.

John's great pal, Tom Shaughnessy, writes that he is still with the Transite Pipe Department of Johns-Manville. He didn't have much to say; no doubt social obligations about New York are keeping him quite busy.

Johnny Rumsey seems to have a very interesting job. He is right on the tails of us "steel makers" to see that we don't slip over a bad supply of steel to the Chevrolet-Forge Division of General Motors. He helps check up on steel before it is accepted. Among other things, they check on grain size, normality hardening properties, segregation, pipe, and surface defects. They also investigate failures that have occurred on the proving ground or in fabrication. It is up to them to see that the trouble is remedied. That job certainly sounds as if it should be an excellent way of learning the properties and limitations of steel.

Jim Mills has been running the Granite City Steel Company for the past year. After graduation he drove out to see the sights in California and then on September first he started work at Granite City Steel. There his job consisted in reading meters and calculating consumption of gas, oil, water, steam, and so on. He also worked at the steam generator. At the first of the year he was transferred to a special department "which does everything that no one else wants to do or has the time to do." He says: "I get all around the plant and certainly enjoy my work. It runs from production and experimental research to sales and claims. I spend quite a bit of time on the Code and a lot just trying to learn what it's all about. I'm studying law in night school. I find it very interesting and hope it will help me some. Not married as yet and no prospects; of course no children." Jim hasn't heard what has happened to the gang since graduation and is longing for some news. His address is 2242 Cleveland Boulevard, Granite City, Ill.

THE TECHNOLOGY REVIEW

Well, fellows, The Review hasn't had much to write about us. There are a great many fellows from whom we haven't heard a peep since we graduated. How about breaking down and telling us what has happened and what is going on? Some of the gang are getting homesick for news. — EMERSON S. NORRIS, Secretary, Beth Mary Inn, Sparrows Point, Md.

COURSE XVII

Big things have happened, boys. Big things have happened! Even Don himself admits it. On Saturday, October 27, 1934, Mr. and Mrs. Walter J. Straub announced the engagement of their daughter, Margret Elfriede, to Lieutenant Donald R. Neil, U. S. Army. Congratulations, Don, from the whole gang; and may you both always be as happy as you are now.

Don writes little else than the main event of the year, and, having met the young lady last summer, I can assure the rest of 17.33 that he's not mistaken in what he writes. And am I going to accept the invitation to lunch with them again the very next time I get to New York!

Naughty, naughty, Bob—you shouldn't write such things to me, even if you do think them. After all, my feelings may be hurt some one of these days when you use such harsh language. It seems that when Crane's address was temporarily missing along with the others I sent his post card in care of Tom, and from the general tone, I gather that he doesn't like being classed as one without identity. Just listen to what he says to me: "profound, abysmal void which hitherto has passed for your brain . . . lousy class secretary . . . confirmed ossified rat" (what's ossified mean, I'm afraid to look it up?) My, my, I just don't know what to do. By no means am I in care of anyone," he winds up.

There is a postal in this month's mail from Jim saying that the present Mrs. J. E. Norcross is "Bobby." She attended Wellesley and both she and Jim are doing some studying even now. Jim is in his second year of law school and makes these observations on life: "This takes three nights a week; consequently, we have a reunion over the week-end. Great life and a lot easier than single life, regardless of what the prophets say."

I can vouch for Margret, and here's what Bob Crane has to say about Bobby: "I think she is great and I certainly hand it to Jim. He picked out one grand girl." Our fellows seem to be doing pretty well. . . . I wish this depression would end for the contractors.

Also from Bob we learn that Sully has been working with a contractor on some kind of a State Hospital at Tewksbury (in the general vicinity of Lowell, Mass.) for some months. He's the engineer on the job, I believe.

The last news from Ed Rowell reports that he's measuring manholes — starting at the bottom, I suppose. Well, he gets paid for it anyway. It seems that Day and Zimmerman, Inc., are making an inventory and appraisal of one of the

1933 Continued

Philadelphia Public Utilities and Ed and another man are checking present man-holes against previous inventory. They write down the depth, size, material, wall thickness, and so on, of the various holes. These are then classified into groups and priced. Just at the time this last letter was written, Ed was estimating trench excavation and concrete envelope for conduits.

Rowell admits that he is in good health, needs exercise, and is still single, and incidentally adds "will be for a long time unless something unexpected happens."

I'm still in Charlotte doing quantity survey work, making small estimates, visiting jobs, and otherwise making myself useful. The last case is representing the owner in a fire insurance adjustment. We are fairly busy with five jobs under way and four more on which we are low bidders but for which we have not received contracts yet. All the construction here is PWA work, except a few residences.

Things are picking up just a little now, but we feel the need of private work. Since I have been in the office, ten weeks now, we have figured two private jobs, and the two together ran less than \$75,000. We are getting our share of the work, but what we poor North Carolina contractors are going to do when the PWA stops making loans and grants, we don't know. Shed a tear for the builders, boys.

I hear from Bill Huston '33, who lives in New York City, and if any of you are going down, drop George Henning, our General Secretary, a line and see if there is to be a meeting of the class during your time there. Huston said not so long ago that there were almost 30 at a class dinner one evening. It would be a pleasant evening, I'm sure, if you happened to strike a meeting. And speaking of dinners, I wish I could get back up for another one like we held last Thanksgiving. Unfortunately, the finances of this individual won't permit, but what's to keep the gang around Boston and vicinity from meeting? How about it, Bob and Tom, and Jim and Sully, and Warren and the Colonel? Couldn't it be done?

Well, this is all for the time being, but don't forget that to keep the mill running there must be a letter occasionally from each of you. Give the Colonel a kick and tell him it's for not writing me, will you? — BEAUMERT WHITTON, *Secretary*, Southeastern Construction Company, Box 1491, Charlotte, N. C.

1934

Information is pouring in more freely now than it was during September and October, and consequently the job of writing these monthly reports is rapidly becoming a pleasant one. And the thanks is due to you fellows who realize that it is impossible for me to write to each member of the class in search of news, and who therefore have taken it upon yourselves to keep me informed.

George Lawrence was married to Miss Dora Harrington on October 20. The wedding took place in Chestnut Hill, at the Church of the Redeemer. The Law-

rences are now living at the Ambassador Apartments in Boston. This is the only marriage of which I have heard recently, although the announcement of the engagement of Miss Natalie Hill to Will Chandler, Jr., was made on October 6. May we add our wishes for happiness to both couples and say that we envy them.

I came across the haven of three Course VIII men some time ago. Walt Wrigley, Chuck Jerome, and Dan Smith are all living here in my home town in a small apartment. Dan is the cook of the trio, although he disclaims any credit for his wifely tasks by saying, "it's merely a matter of opening cans." All three are working for the International Printing Ink Company in New York. Walt apparently has the best job, what with a lab and office all for himself. Chuck and Dan are helpers in all sorts of research problems, and whereas they might grab at the chance to have a lab for themselves, they are of the opinion that a secretary ought to go along with the job.

The famous Lappé gang, which all dorm men should long remember, finally comes into print through information supplied by Eddie Sieminski (one of its members) and Art Conn. Ed, when I last saw him, was trying to sell himself to any employer who was interested. This was in New York, and when he returned to New Bedford, he dropped me a note disclosing these facts:

Paul Lappé is working in Fall River with the Berkshire Fine Spinning Associates, Inc. When the proposed textile lab is completed, he will be doing something along the line of textile microscopy. At present, however, he is on the engineering staff. Hal Bellinson is doing research in color printing on tin and aluminum foils for the Reynolds Metals Company, at their Louisville, Ky., branch. You'll remember that King Crosby is working for the same outfit in Glendale, Long Island, and expects to be transferred to Louisville soon. Irv Kusnitz is working as a mechanic with a steam turbine company at Wellesville, N. Y., and Henry Kaweck is located at Port Huron, Mich., with the Beryllium Products Corporation.

Dick Bell was in Saint Louis for a few days about the first of September before starting east again to investigate some clay-washing machinery for his company. Dick has appointed Hoyt Steele to serve as Alumni Representative for our class. Hoot will also act as Assistant Secretary. The position of Alumni Representative was a hard one to fill. Joe Seligman was first chosen by Dick because it was believed he was to be at Tech this year. However, when Joe enrolled at Yale Law School, Henry Backenstoss was asked to serve. Henry is a VI-A man and declined, after which Hoot was asked and immediately accepted.

Received a letter from Johnny Brunner, who is with the New York Telephone Company, working in their Western Division in and around Buffalo. He is living in Arcade, N. Y., at the Hotel, which is described as a "home for the

traveler." Johnny says that he is supposed to be getting experience, but wishes he was getting it in a big city. He says that the cinemas in most small towns are terrible, and the same goes for the food. The only exciting things to be found are school teachers. They, and the good old-fashioned square dances are the only saving features of what otherwise promises to be a rotten time. Johnny complains that he does not have the companionship of other Tech men as do those fellows who are with the duPont Rayon Company in Buffalo. Ted Hetzel and Wilbur Foote are two who are at the duPont plant, doing routine analyses. They are rooming together with Cal Mohr, whom you may remember as a '33 man. Coleman, who is with National Analine, is also surrounded by Tech men, so that Johnny feels that he is very much left out in the cold with his telephone job.

Bill Main is now with the Engineering Department of the Erie Railroad, working out of New York. He finds boarding houses a pernicious habit and something to forget as quickly as possible. I hope that I am not taking too many liberties in adding that Bill says he had a good vacation in Vermont before coming to work and that his "one-and-only" is giving him great moral strength.

Dave Knox, who held several inspector's jobs in New Hartford, Conn., is now inspector general of that town's water supply dam.

Freeman Hudson, who will be back at Tech starting in February, was in a smash-up some months ago in New Hampshire. It was no small accident either, because Freeman lay unconscious for more than three weeks after it occurred, and was delirious for a time after he returned to consciousness. Brain experts and specialists were called in, and Freeman finally pulled through satisfactorily. Ted Hetzel, who learned all this from Fred Kaiser, also wrote to say that Karl Gardner, Apjohn, and Poole are all working at an oil refinery near Boston. Fred, in the meantime, has landed a job with the Crosby Valve and Gage Company in Charlestown, while Gene Clark is with Manganese-Steel Company in South Chicago, and Aaron Redcay has long been with the Goodyear crowd in Akron, Ohio.

Art Conn has written to tell me about all the fellows who are back working for advanced degrees. Syd Nashner is one of them, and besides studying physical metallurgy, Syd is coaching the freshman 150-pound crew, having been appointed by Bill Haines. In the Chemical Engineering Practice group there is Carroll Fentress, Charlie Feuchter, Warren Fowle, Winton Brown, and Art himself. Up until now (November) they have been visiting the plants of the Bethlehem Steel Corporation at Lackawanna, N. Y., and the Eastern Manufacturing Company at Bangor, Maine. At present they are working at the plant of the Merrimac Chemical Company in Everett. By the time this reaches you, they will be back at the Institute doing what most of us finished last June. Of the bunch, Charlie Feuchter

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1934 Continued

will have received his degree in February, and after that it's the cold, cruel world for him. The VI-A men around the Institute at this time include George Fickett, Gardner Fox, Gordon Burns, and Henry Backenstoss. Wing Lem is still with us, working for his M.S. in Course XVI, as are Bob Kenngott (VIII), Reuben Haines (I), Duke Haseltine (VIII), and Johnny Holden and Harrison Carlson (X). The X-B boys ran across Willie MacDonnell at the Bethlehem plant. Willie is there as an assistant at the open hearth furnace. René DuBois was in Boston over the Armistice Day week-end and admitted that he had a job with the United Fruit Company. He likes everything about it but living in New York.

An anonymous postcard arrived just the other day to announce that Charlie Hill has accepted a position with the

Carrier Air Conditioning Company, at Newark, N. J. The card was postmarked Malden, so I imagine it came from Charlie himself.

Those of you in Course III certainly must remember G. B. Hulett. Although he attended Tech only as a graduate student, he is ranked as a member of our class. Professor Locke received a letter from him not so long ago in which Hulett gave a brief account of his recent doings. He has been in the employ of the Basin Montana Tunnel Company for the past four or five months as a mill sampler and assayer. However, before graduating to this comparatively easy job, he was a member of what is called the "chain gang." In this capacity he was required to dig cesspools, construct telephone lines, dig prospect trenches, frame mine timber by hand, and muck underground.

The following is an excerpt from the *Boston Traveler*: "New England's puzzlers will get together every month at the Parker House to wrestle with cryptograms, form puzzles, anagrams, and other literary puzzles." Included among "other prominent members" of the Yankee Nimblewits is Leonard Shapiro, M.I.T. '34, "graduate in chemical engineering and already a notable cryptogram expert."

By the time this reaches print I shall have been at work for a month at Macy's in New York. True, selling toys has nothing whatsoever to do with mining, but the saying "any port in a storm" holds good even when one is job-hunting. However, I hope by the next time you read your Review, to be on my way to South America. — ROBERT C. BECKER, General Secretary, 43-20 30th Avenue, Long Island City, N. Y.

*"A word of Commendation . . . on
The Review—both in appearance,
composition and editorial contents. It
at once offers the best possible digest of
technological progress and its practical
application that I can find in the gen-
eral field"*

*{Quoted from a letter written by a Technology
graduate—dated November 28, 1934}*